



INDIGO INDUSTRY AND TRADE IN GUJARAT IN THE SEVENTEENTH CENTURY

DISSERTATION

**SUBMITTED IN PARTIAL FULFILMENT OF THE REQUIREMENTS
FOR THE AWARD OF THE DEGREE OF**

Master of Philosophy
IN
HISTORY

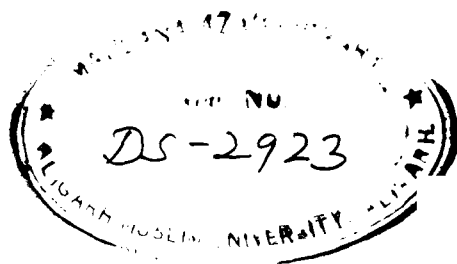
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**This is to certify that the dissertation
on 'Indigo Industry and Trade in Gujarat in the
Seventeenth Century', submitted by Mr. Ghulam
Ahmed Nadri is the original work of the candidate
and is suitable for submission for the award of
M.Phil. degree.**

Irfan Habib
(IRFAN HABIB)
Supervisor

To
My Mother
Now a memory

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(Ghulam Ahmad Nadri)

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LIST OF ABBREVIATIONS

<i>CPI</i>	The Commercial Products of India
<i>DEP</i>	A Dictionary of the Economic Products of India
<i>DFI</i>	The Dutch Factories in India
<i>EFI</i>	The English Factories in India
<i>IHR</i>	Indian Historical Review
<i>JIH</i>	Journal of Indian History
<i>MAS</i>	Modern Asian Studies
<i>PIHC</i>	Proceedings of the Indian History Congress

INTRODUCTION

Indigo being an extensively marketable crop, offers an interesting example of commercialized agriculture in pre-colonial India. The indigo dye, *nil* or *gali* as it was called in Gujarat was an important product which was carried to the markets of the Red Sea and Persian Gulf from Gujarat even in the 14th century. From Abul Fazl's statements we know that indigo from Sarkhej was taken to the Ottoman Empire at the close of the sixteenth century. The seventeenth century began with the arrival of the English and the Dutch, a phenomenon which influenced the entire history of Eurasian commerce for more than two centuries. Though indigo trade was not the primary concern of the Portuguese, they yet found it profitable and exported a large amount of it to Lisbon till at least 1620's. The English and Dutch were prompt in realising the potentiality of profit in supplying indigo to the markets of Europe. Soon their indigo exports to Europe via Cape of Good Hope, exceeded those of the Persian Gulf and the Red Sea. The demand for indigo went up, production increased correspondingly. Since the cultivation of indigo was concentrated in certain areas,

indigo may be presumed to have occupied a considerable area of the cultivable land of the locality.¹ It was owing to this that in the periods of famine the indigo growers experienced extreme shortage of foodstuff and consequent death and starvation; hence a shift towards foodgrain production in the post-famine period, as seen in the shift from cotton production to foodgrains.² With a decline in the European demand for this commodity the production also shrank and the industry by the close of the century in Gujarat practically came to an end.

Indigo production received much attention from the fact that indigo plantations became so important in the late 18th and 19th centuries, as in G. Watt's monumental Dictionary of Economic Products.³ W.H. Moreland studied the conditions of indigo cultivation in the seventeenth century.⁴ Subsequently, Jagdish Narain Sarkar gave a

1. The average annual turnout of Sarkhej indigo was something about 10,000 'Gujarat maunds' in normal year (Sakina Yusuf, 'Agrarian Society and condition in Gujarat, 1572-1707', M.Phil. Dissertation, AMU, 1983, p.48). See also my paper. 'Indigo Production and its Organisation in Sarkhej during the seventeenth century', PIHC, Aligarh, 1994, pp.338, 341, 344.

2. *EFI*, 1634-36, p.64.

3. George Watt, *DEP*, IV, London, 1890, pp.383-470.

4. W. H. Moreland, *India at the Death of Akbar: An Economic Study*, Delhi, (Reprint) 1990; *From Akbar to Aurangzeb: A Study in Indian Economic History*, New Delhi, 1972.

more detailed account based mainly on English commercial records.¹ A more recent work on the English commerce by Pramod Sanjar has a section on indigo though the account has many imperfections.² But there has been no exclusive study of the cultivation and manufacture of indigo in pre-colonial Gujarat.

In this Dissertation an attempt is made of work out the different aspects of the indigo production techniques used in Gujarat and the internal and external trade in the product, by drawing upon information gleaned from English, Dutch and Persian sources. The factory records of the English and Dutch companies and the accounts of, European travellers constitute the main sources of information.

This work covers two broad themes of the indigo 'industry' and 'trade' and is divided into five chapters. Chapter I treats of various locations in

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1. Jagdish Narain Sarkar, *Studies in Economic Life in Mughal India*, Delhi, 1975, pp.129-176.
 2. Pramod Sanjar, *Growth of the English Trade under the Mughals*, Jalandhar, 1993, pp.133-48. His assertions that the Sarkhej and Ahmadabad indigo were two varieties (pp.140-43), Sarkhej indigo was prepared by water while in other parts by fire (p.140) and it was cheapest and best in India (p.140) are a few examples of carelessness in treatment.

Gujarat where it was cultivated. A major portion of this chapter is devoted to the methods of cultivation. On some important aspects for which I could not get contemporary evidence I have made use of the 18th century information such as the method of sowing (broadcasting or drill system) and the cropping pattern (single crops or mixed crop).

Chapter II is devoted to the manufacture of the dye and its various aspects. Adulteration was a common practice and the abundant information induced me to give it a separate treatment. How the production was managed and industry organized is discussed in the last section of this chapter.

Intensive trade in this commodity by the European and other Asian merchants in the first half of the 17th century which transformed indigo into an industry and the slump in indigo commerce in the latter half, is taken up in Chapter III. An attempt is made to trace the changing pattern of European demand for indigo which was manifested in the changing position (from prominence to oblivion) enjoyed by indigo among the articles of merchandise. The trade by non-European merchants along the Persian Gulf and Red sea is discussed in its last

section. This branch of indigo commerce seems to have remained active throughout the seventeenth century.

In chapter IV various aspects of the organisation of trade are examined. It evaluates the role of state, the extent of its interference in the conduct of business as well as the role of brokers and middlemen and of financing of indigo trade. The mode of packing indigo had an important bearing on the maximum utilization of the cargo-space in the ship. This aspect and the mode of inland transportation are discussed in the last section of this chapter. Chapter V attempts an examination of different units of weight used in indigo transaction and the movement of indigo prices. The working out of the values of weights is necessary for not only conversions of prices quoted in terms of different measures into a single standard for comparative purposes, but it is also important for estimating yields, etc.

It is hoped that the information brought together in this dissertation will not only help to illumine some aspects of the indigo industry of Gujarat, but also to help to set the entire industry in the context of the economy of Gujarat in the 17th century.

CHAPTER - I

INDIGO CULTIVATION

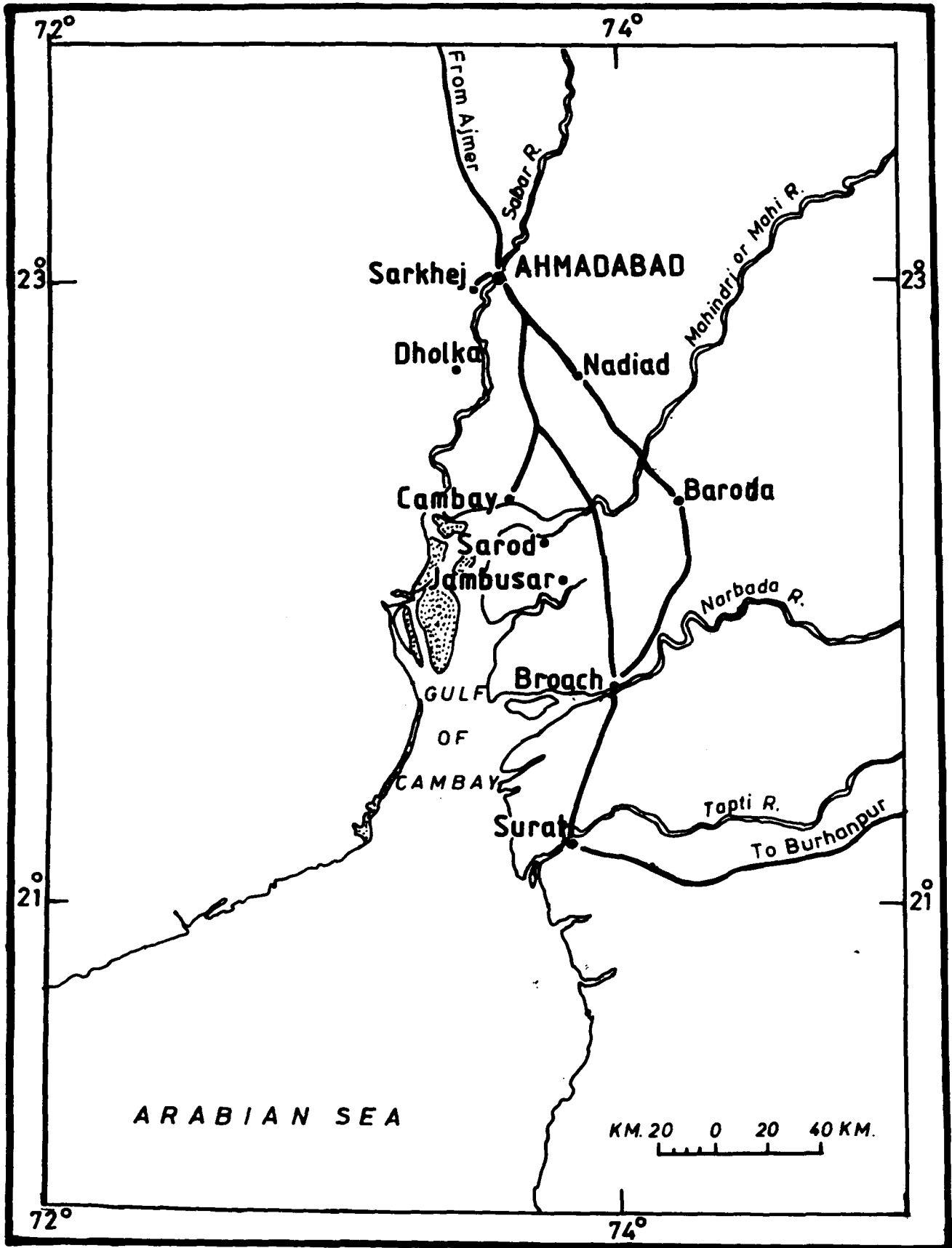
(a) Locality and variety

The seventeenth century Sarkhej in Gujarat was reputed to produce the second best variety of indigo in the entire country.¹ The indigo produced at Bayana near Agra was described by the contemporary travellers as the best in India.² Within Gujarat different localities produced indigo of varying qualities. The following areas have been identified as the centres of indigo production in Gujarat.

Sarkhej is a well known village situated at a distance of about 11 kilometres west of Ahmadabad. The best quality indigo in Gujarat was produced here.³ John

1. Although the indigo of Sehwan in Sind was thought to be better in many respects, the second place was generally assigned to the indigo of Sarkhej (Irfan Habib, *The Agrarian System of Mughal India*, Bombay, 1963, p.42).
2. William Finch in *Early Travels in India*, ed. W. Foster, New Delhi, (Reprint) 1968, p.174; Jonnes De Laet *The Empire of the Great Mogol*, tr. J.S. Hoyland, Delhi, (Reprint) 1975, p.23; Francisco Pelsaert, *Remonstrantie* tr. W.H. Moreland and P. Geyl, *Jahangir's India*, Delhi, 1972, p.10; Jean Baptiste Tavernier *Travels in India*, tr. V. Ball, ed. William Crooke, New Delhi, 1977, p.7; Om Prakash, *DFI*, 1617-23, New Delhi, 1984, p.136.
3. "Pieter van den Broeke at Surat (1620-29)", tr. W.H. Moreland, *JIH*, X, 3, p.246; M.S. Commissariat, *History of Gujarat*, II, Bombay, 1957, p.303.

INDIGO MARTS AND TRADE ROUTES IN MUGHAL GUJARAT



Jourdain tells us that at Sarkhej and adjoining villages much indigo was produced which all went under the name of Sarkhej.¹ Speaking of Sarkhej, Abu'l Fazl informs us that indigo of good quality was produced there and exported to the Ottoman Empire and other countries.² Geleynssen de Jongh (1632-40) reports that much indigo was produced at a small township called Sarkhej.³

Jambusar is situated to the north of Broach on the road leading to Cambay. It is about 51 kilometres south-west of Baroda. Mandelslo (1638-9) found this place famous for indigo.⁴ The indigo produced here was of an inferior quality and was called *singilli*.⁵ The Dutch found it too inferior to send to Holland and, according to them, it was mainly used in dyeing black *baftas*,

1. John Jourdain, *The Journal of John Jourdain*, (1608-17) ed. W. Foster, New Delhi, (Reprint) 1992, p.172.
2. *Ain-i Akbari*, Abu'l Fazl, Munshi Nawal Kishore Edition, 1882, II, p.115.
3. Geleynssen de Jongh, *De Remonstrantie van W. Geleynssen de Jongh*, ed. W. Cland, 'S-Gravenhage, 1929, p.46.
4. *Mandelslo's Travels in Western India (A.D. 1638-39)*, ed. M.S. Commissariat, New Delhi, (Reprint), 1995, p.15.
5. Van den Broeke, *op.cit.*, p.246. Moreland suggests that *singilli* is probably *jangali* or wild. But there is no reference anywhere to any wild strain of indigo.

cannikens and other poor quality textiles.¹ That Jambusar produced an inferior quality indigo is corroborated by the contemporary English accounts.² The English factors did not consider it worth carrying home.³ However the Dutch factors were asked by the home authorities to supply some Jambusar indigo if the quantity of better quality Sarkhej indigo was inadequate.⁴

Cambay, a well known port town of Gujarat, also produced some indigo.⁵ It is the earliest recorded place of indigo production since Marco Polo and Van Linschoten (1583-8) have referred to it.⁶ But whether

1. *DFI*, 1617-23, p.235.

2. *Letters Received*, I, p.28; II, pp.253, 281; *EFI*, 1618-21, pp.215-16, 291; De Laet, op.cit., p.25.

3. *Letters Received*, II, pp.253, 281; VI, pp.215-16; *EFI*, 1618-21, pp.291, 310.

4. *DFI*, 1617-23, pp.45, 143-4, 237.

5. De Laet, op.cit., p.282.

6. *The Book of Sir Marco Polo*, tr. ed. Henry Yule & Henry Cordier, New Delhi, (Reprint) 1993, pp.398, 398n. Indigo of Cambay was long a staple export and is mentioned by Nicolo Conti, Nikitin and Santo Stefano, See *India in the Fifteenth Century*, ed. R.H. Major, New Delhi (Reprint), 1992, Chapter II, p.20; III, pp.8,19, IV, p.9.; Van Linschoten, *A Voyage of John Huyghen van Linschoten to the East Indies*, II, ed. P.A. Tiele, New Delhi, 1988, p.91.

they here meant by Cambay simply Gujarat or a locality close to Cambay port, is not clear. John Jourdain says that a meaner quality indigo was produced at Cambay.¹ While referring to the same place, Tavernier says that the indigo of the same kind as that of Sarkhej was made here which was very much sought after by the Portuguese.² James Forbes writing around 1774-75 says that indigo was always a staple commodity at Cambay where a large quantity was still manufactured.³ This suggests that indigo was actually produced in the locality of Cambay port in the seventeenth century. However, Cambay was known more for its position as a centre of indigo trade than of indigo production.⁴

Dholka was another centre of indigo production. It is situated at about 38 kilometres south of Ahmadabad. An inferior quality indigo dye was produced here. In our sources its quality is not explicitly mentioned, though it was apparantly not one which attracted many buyers. The English factors sometimes purchased this indigo and

1. John Jourdain, *op.cit.*, pp.173-74.

2. Tavernier, *op.cit.*, II, p.56.

3. James Forbes, *Oriental Memoirs; Selected from a series of familiar letters written during 17 years residence in India*, Delhi, 1988, II, p.19.

4. John Jourdain, *op.cit.*, pp.173-74.

exported to Europe and some parts of Asia.¹

Nadiad (Nariad or Niriaud) is situated at 48 kilometres to the south-east of Ahmadabad. According to De Laet it was a large town and a large amount of indigo was produced there.² None of the European factors is reported to have bought this variety, and possibly this was used by the local dyers.

Baroda (Brodora or Brodera) was another indigo producing area situated on the route between Broach and Ahmadabad.³ We are told that the indigo produced at Baroda was very similar to that of Sarkhej.⁴ But another report describes it as coarse.⁵

Broach, a well known town, was situated on the main trade route that connected Ahmadabad with Surat.⁶ It is located at a distance of 71 kilometres from Baroda towards its south west and 60 kilometres to the north-east of Surat. It was one of the important trading

1. *EFI*, 1622-23, pp.150, 172-73.

2. De Laet, *op.cit.*, p.26.

3. See Irfan Habib, *An Atlas of the Mughal Empire*, New Delhi, 1986, 7B.

4. John Jourdain, *op.cit.*, p.173-74.

5. *Letters Received*, I, p.28.

6. Irfan Habib, *An Atlas of the Mughal Empire*, *op.cit.*, 7B.

centres of Gujarat. It also produced some indigo.¹
 However the quality of indigo was not good.²

Sarod or Saroll is situated on the southern side of the Mahi estuary in the district of Broach and is about 14 kilometres from Jambusar. This village produced some indigo of poorer variety than those of Sarkhej and Baroda. Hence its price was quite low as compared with those of the indigo of the former localities.³

Southern Gujarat does not seem to have been suitable for indigo cultivation. Indigo finds no mention in the long crop list and detailed description of cultivation in a large area of grant reassigned in 1596 at Navsari in the sarkar of Surat.⁴ Nor does it appear in the account of the produce, manufacture, trade and cultivation of the several *parganas* dependant on Surat, prepared by the English in 1781.⁵

1. Letters Received, III, p.54; *EFI*, 1622-23, p.20.

2. *Ibid.*, p.54.

3. John Jourdain, *op.cit.*, p.217.

4. Irfan Habib, "Agriculture and Agrarian conditions in South Gujarat, 1596", *PIHC*, Mysore 1993, pp.246-60.

5. *Selections From the Letters, Despatches, and other State papers preserved in the Bombay Secretariat (henceforth Selection)* ed. George W. Forrest, Bombay, 1887, 1, pp.430-33.

(I, b) Methods of Cultivation

Information specifically relating to the methods of indigo cultivation in Gujarat is scarce. Most of the contemporary descriptions of indigo production by the European travellers seem confined to Bayana.¹ Some of them, even, while describing Gujarat indigo, lay more stress on the technique of indigo manufacture, than its cultivation.² The best we can do is to bring together the scattered information and try to combine the pieces into a coherent description of indigo production in Mughal-period Gujarat.

Indigo was classified as a *kharif* crop, and the main harvesting time was winter. But after the leaves were cut, the plant was left to grow again and the second crop was cut sometimes after the winter. According to a late 18th century report there was a third cutting too from the same stalks when the hot season started.¹ In this case it could be deemed a *rabi*

1. William Finch in *Early Travels*, op.cit., p.174; Pelsaert, op.cit., pp.10-12; Tavernier, op.cit., II, pp.7-10.

2. Edward Terry (1622) and Mandelslo (1638) in *CPI*, George Watt, London, 1908, p.666; Geleynssen de Jongh, *Remonstrantie*, op.cit., pp.46-47.

3. Watt, *DEP*, IV, pp.411-12.

crop. Van Santen, on the basis of some Dutch information has also suggested that it was both *rabi* and a *kharif* crop.¹ He has also observed that the earlier or *kharif* cutting was superior to the *rabi*.² In the revenue rates of different crops of various provinces, which do not include Gujarat, Abu'l Fazl has uniformly listed indigo among the *kharif* crops.³

Indigo was sown sometimes in June.⁴ At this time the field was ploughed and prepared. According to Watt the peasants ploughed the field more than once and manured it if possible.⁵ Black soil was found in the vicinity of Ahmadabad and Sarkhej. This soil is well known for preserving moisture and is therefore suited for indigo cultivation. Geleynssen de Jongh has indeed noted that indigo was sown in black sandy soil ('zwaarte santachtig aerde').⁶ His reference to the red soil

1. Hans Walther van Santen, *De Vereenigde Oost Indische Compagnie in Gujarat en Hindustan, 1620-1660*, Ph.D. Thesis, Leiden University, 1982, p.136.

2. Ibid.

3. *Ain-i Akbari*, op.cit., II, pp.6-46.

4. Geleynssen de Jongh, *Remonstrantie*, op.cit., p.48; Watt, *CPI*, p.666.

5. Watt, *DEP*, IV, p.412.

6. Geleynssen de Jongh, '*Remonstrantie*', op.cit., p.48.

('rootachtig zant') however, is a little hard to understand as this soil did not retain moisture for long and required much irrigation.¹ Red sand, however, is reported to be found in the locality of Sarkhej.² In an eighteenth century account of indigo cultivation at Kheda in Gujarat, the crop appears to have been raised on light or gorat soil.³ The quality and yield must have varied according to the nature of the soil on which the crop was raised.

Seed was sown by drill as the plant required a regular and uniform distance which was not possible if it was sown through being broadcast. Drill sowing seems to have been the general method in indigo cultivation at least in eighteenth century Gujarat.⁴ Reports of the

1. T.C. Sharma and O. Coutinho, *Economic and Commercial Geography of India*, New Delhi, 1980, p.57.
2. Matheus van Heck (1681-1700) has referred to it as a fine red sand available in the neighbourhood of Sarkhej which was used for adulterating the dye (Ashin Das Gupta, *Indian Merchants and the Decline of Surat 1700-1750*, Weisbaden, 1979, p.60.
3. Watt, *DEP*, IV, p.412. Gorat or goradu was a fertile soil responding very well to irrigation and manuring and all kinds of crop can be raised on this soil (*Gazetteer of India, Gujarat State, Ahmadabad District*, 1984, p.273.
4. Dr. Hove (1787) is cited by Watt to the effect that

last century suggest drill sowing in both the cases where indigo was independently sown and where it was sown mixed with cotton and other crops.¹ After the germination of the seed, constant weeding was required, since the grass which grew with indigo was injurious to the plant.

The crop required much irrigation. Wells must have been used for this purpose, since they were in any case needed to supply water to the indigo vats which stood by the side of the field.² Frequent reference to the scarcity of indigo due to scanty rainfall bear testimony to the dependence on rains as well.³ In Gujarat indigo was grown in the moderate rainfall zone,⁴ that is the

Contd...

indigo was drill-sown and the alternate lines were divided at about 16 inches from each other in which cotton and other grain was sown (Watt, *DEP*, IV, p.411).

1. Watt, *DEP*, IV, p.411.
2. Ashin Das Gupta, *Indian Merchant*, op.cit, p.60.
3. *EFI*, 1655-60, p.196; *EFI*, 1661-64, p.320.
4. Shireen Moosvi, 'The Economy of Gujarat c. 1600: The Ain's Statistics', *Essays in Medieval Indian Economic History*, Indian History Congress Golden Jubilee Volume III, ed. Satish Chandra, New Delhi, 1987, p.119.

central and southern parts of *sarkar* Ahmadabad and *sarkars* of Baroda and Broach. But excessive rainfall was as much devastating for it as scanty rainfall.¹

Indigo depended very much on the ground moisture and the conditions of the soil that make this available.² Geleynssen de Jongh refers to the ground moisture ('vochticheijt van de gront') as affecting the growth of the plant.³ Therefore it was necessary to break the upper layer of the soil so that it did not develop cracks and retained moisture.

The crop was ready for the harvest around September and October.⁴ According to Mandelslo it was cut in November and December.⁵ This variation was perhaps due to the varying productivity of the soil on which it was sown. It was cut when the leaves were green

1. Pelsaert, op.cit., p.11. His description of indigo production is specific to Bayana but it seems that he was aware of the methods and processes applied at Sarkhej, since where there was a difference as in the case of vats he has noted it.

2. Watt, *CPI*, p.679.

3. Geleynssen de Jongh, *Remonstrantie*, op.cit., p.46.

4. Ibid.

5. Watt, *CPI*, p.666.

and the stalks were left in the field to dry for a few days and then the leaves were taken off.¹ Geleynssen de Jongh says that the crop was cut when the plants were three to four yards high, and the people cut it a foot above the ground ('snijdt mense een voet boven der aerde af, die somwijlen wel drie a 4 allen lanck zijn').² That it was cut within a foot of the ground is also referred to by Mandelslo.³ Tavernier says that the first cutting took place when it was two or three feet high and it was cut within six inches of the ground.⁴ The remaining stem was left to grow again and leaves came up shortly afterwards.

In the second year leaves sprouted from the same stalks and another crop was harvested in the same manner. Van Linschoten while describing indigo cultivation in Gujarat at the close of the 16th century does not refer to more than one cutting from the same

1. Geleynssen de Jongh, *Remonstrantie*, op.cit., p.46.

2. Ibid.

3. Watt, *CPI*, p.666.

4. Tavernier, op.cit, II, p.8. His account of indigo cultivation is not specific to any region, but he had visited Gujarat and must have known about conditions of indigo cultivation there.

stalks.¹ From seventeenth-century reports it is evident that two or three crops were taken from the some stalks in three years. Geleynssen de Jongh tells us of two successive annual crops being taken from the same stalks.² On the other hand, Mandelslo (1638-39) in his account of indigo cultivation at Sarkhej, clearly says that the indigo plant gave three successive annual crops. He writes: "It is sown in June and cut in November and December. It is sown but once in three years and the first year the leaves are cut within a foot of the ground."³

Tavernier's observation that it was sown every year and was cut three times a year is not corroborated by any contemporary traveller.⁴ In a report of 1787 we are informed that the Gujarat planters grew indigo for two seasons and commonly had three crops a year.⁵ But it is not clear whether the three crops were taken from

1. Van Linschoten, op.cit., II, p.91.

2. Geleynssen de Jongh, *Remonstrantie*, op.cit., p.47.

3. Watt, *CPI*, p.666.

4. Tavernier, op.cit, II, p.7.

5. Watt, *DEP*, IV, pp.411-12.

the same stalks. Ashin Das Gupta quotes a Dutch factor Matheus van Heck, (1681-1700) who had spent 12 years in Gujarat in the last quarter of the 17th century and had personally observed the process of indigo production at Sarkhej: he says that the plant from whose leaves the dye was prepared lived for three years and gave one crop every year.¹ The first year's crop in Gujarat was called *ballera*, the second year's as *sien*, and the third year's as *baldewa*.² Thus from our sources it would appear that the indigo once sown was generally retained for three years and yielded one crop every year.

In Gujarat the first crop was the best, and it yielded the best quality dye. Geleynssen de Jongh says that the dye prepared from the second crop was not generally as good as from the first.³ Tavernier suggests that the indigo dye obtained from the first cutting was of a violet blue which was more brilliant and lively than the others.¹ He also says that the leaves obtained

1. Ashin Das Gupta, *Indian Merchants*, op.cit., p.58.

2. Ibid.

3. Geleynssen de Jongh, *Remonstrantie*, op.cit., p.46. In Bayana it was the second crop called *ziarie* which produced the best dye, (Pelsaert, op.cit., p.11).

4. Tavernier, op.cit., II, p.8.

from the second cutting were 10 or 12 per cent. less than from the first and the third 20 per cent. less than from the second.¹ In the second or third year a part of the crop was reserved for producing seed, after which the plant was uprooted.²

Evidence on the cropping pattern of Gujarat in the seventeenth century is not forthcoming, hence it is difficult to determine the crops with which indigo alternated. It appears from our sources that the field on which indigo grew for three years was left fallow for one year to enable it to regain fertility.³ Geleynssen de Jongh, however, says that the plant in the second year itself was uprooted and burnt and the land was not sown for a whole year after which it was ploughed up and sown.⁴ In the nineteenth century indigo plantations wheat or rice was grown as a rotation crop with indigo

1. Tavernier, op.cit., II, p.8.

2. Geleynssen de Jongh, *Remonstrantie*, op.cit., p.47; Watt, *CPI*, p.666.

3. Ibid.

4. Geleynssen de Jongh, *Remonstrantie*, op.cit., p.47.

at least in Bengal.¹ But it is not certain if wheat or any other grain acted as a rotation crop with indigo in Gujarat during the seventeenth century.

1. Watt, *DEP*, IV, pp.404, 406.

CHAPTER TWO

MANUFACTURE OF THE DYE

(a) Process of Manufacture

The indigo dye was manufactured from indigo leaf which was cultivated in Gujarat at different places in the seventeenth century. For this a set of vats (cisterns), usually with a well for the supply of water, was constructed by the side of the indigo fields.¹ The vats were made of stone and were on the inside plastered with lime.² Generally, two inter-connected vats were constructed, one of which was at a higher level than the other.³ Geleynssen de Jongh(1632-40) tells us that in Gujarat a series of inter-connected vats (about six in number) was used.⁴ But the construction of vats on such

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1. Van Heck (1681-1700), cited by Ashin Das Gupta, *Indian Merchants*, op.cit, p.60.
 2. Mandelslo in Watt, *CPI*, p.666; Tavernier, op.cit., II, p.8.
 3. Mandelslo and Terry in Watt, *CPI*, p.666.
 4. Geleynssen de Jongh, *Remonstrantie*, op.cit, pp.46-7. See Ishrat Alam, 'New Light on Indigo Production Technology, During the sixteenth and seventeenth centuries', *Art and Culture*, ed. A.J. Qaisar and S.P. Verma, Jaipur, 1993, pp.120.

pattern has not been corroborated by any of the contemporary travellers. Even the detailed description of indigo vats by Van Heck (1681-1700) does not tally with those of Geleynssen de Jongh.¹ Sometimes a single vat was used where the works of stirring, working back and forward as well as coagulation took place in the same vat, as Pelsaert tells us with specific reference to Sarkhej.² Tavernier's description of indigo manufacture too, indicates the use of a single vat for the entire process.³ Under this system the vat remained occupied during the entire process, while in the other mode, the upper vat after its water had been drawn into the second became empty to take the next lot of plants. The double vat or multi-vat system described by Geleynssen de Jongh, obviously made for more rapid manufacture. It should be noted that the number of vats affected the quality of the dye. As the water with the dye passed through several vats the final output could be more refined and pure. Where only one vat was used

1. Cf. Ishrat Alam 'New Light on Indigo Production Technology', op.cit., pp.121-22.

2. Pelsaert, op.cit., p.15.

3. Tavernier, op.cit, II, p.8.

the manufactured dye was bound to retain some particles of the plant.

Where there were more than one vats, the first was generally rectangular. Referring to it, Geleynssen de Jongh says that it was rectangular ('viercante tancke') and was about one fathom (6 feet) deep.¹ Mandelslo tells us that it contained about six or seven feet of water which suggests that it was more than seven feet deep.² Ashin Das Gupta cites Van Heck for the statement that the principal vat in Sarkhej could accommodate as much as 50 (Gujarat) maunds of leaf.³ The size and capacity of the vats it may be presumed, depended upon the productivity of the locality and therefore varied from one area to another. The second vat which was connected with the upper rectangular one was rather shallow; and unlike the circular vats of Bayana, this was not provided with a bowl-shaped receptacle.⁴ Another

1. Geleynssen de Jongh, *Remonstrantie*, op.cit., p.47.

2. Watt, *CPI*, p.666.

3. Ashin Das Gupta, *Indian Merchants* op.cit., p.60.

4. Watt, *CPI*, p.666. In a recent survey of indigo vats at Shahpur, Tehsil Kol, Aligarh, I happened to come across such lower circular vats without a receptacle at the bottom. See my paper, 'The Archaeology of Indigo

description of indigo vats at Sarkhej was given by Van Heck (1681-1700): he describes the first vat or steeping vat (*ner*) as round and not rectangular and the lower vat (*mada*), connected with the *ner*, had another small vat within which was called (*condi*), so that the Bayana pattern was followed here.¹ The second lower vat here resembled with the lower circular vats of Bayana which had a bowl-shaped receptacle at the bottom.²

There were two processes of dye manufacture during the seventeenth century. There was first the 'green leaf' process in which the plant immediately after cutting was put into the vat for decomposition.³ This was the one employed in Bayana throughout the seventeenth century. The other was the 'dry leaf' process under which the plant was cut and dried and the

Contd....

Manufacture', presented in the Second Annual session of Association for the Study of History and Archaeology, (ASHA), Aligarh, June 1996.

1. Ishrat Alam, 'New Light on Indigo Production Technology', op.cit., pp.121-22.
2. Cf. Pelsaert, op.cit., pp.10-11; Iqtidar Alam Khan, 'Pre-Modern Indigo vats of Bayana', *Journal of Islamic Environment Design*, Rome, 1989, p.93; K.K. Trivedi, 'Innovation and Change in Indigo Production in Bayana, Eastern Rajasthan', *Studies in History*, 10,1, n.s. 1994, pp.61-63.
3. Watt, *DEP*, p.434.

leaves were gathered and separated from the stem and then put into the steeping vat.¹ In Gujarat in the sixteenth and early seventeenth centuries indigo was manufactured through 'dry leaf' process.² The dry leaves in the steeping vat remained under water for four or five days and were stirred till such time as the water had absorbed the blue tincture and substance of the leaves.³ Then the water was drawn into the second vat through a connecting hole, and in this vat it was allowed to settle for some time. In the multi-vat system the pulp passed through three vats and in the fourth it was stirred again and drawn into two further tanks where it was allowed to precipitate.⁴ Thereafter the clear water at the top was taken out of the vat and the remainder was allowed to evaporate by the heat of the sun.⁵ The pulp at the bottom was then taken out and

1. Ibid.

2. Van Linschoten, *op.cit*, II, p.91; Watt, *CPI*, p.666; Geleynssen de Jongh, *Remonstrantie*, *op.cit.*, pp.46-47.

3. Geleynssen de Jongh, *Remonstrantie*, *op.cit.*, p.47; Watt, *CPI*, p.666.

4. Geleynssen de Jongh, *Remonstrantie*, *op.cit.*, p.47; Ishrat Alam, 'New Light on Indigo Production Technology', *op.cit*, p.120

5. Watt, *CPI*, p.666, Geleynssen de Jongh, *Remonstrantie*, *op.cit.*, p.47; *Oriental Memoirs*, *op.cit.*, II, p.19.

dried, whereafter it was made into cakes.¹

In 1643 we find a reference to the application of 'green leaf' process for the dye manufacture at Sarkhej in the Bayana fashion.² The dye produced through this method was of a superior quality.³ But the indigo leaf was also dried, which had its own advantage since the manufacture of the dye from the dry leaf could be organized at a distance from the field. The dye extracted from green leaves was called in Gujarat *silaponka nil* and that from dry leaves was known as *sukhaponka nil*.⁴ In the subsequent period we find that the indigo was manufactured through the 'green leaf' process, while the dry leaf method was not totally abandoned. Matheus van Heck (1681-1700) has referred to both these processes in practice at Sarkhej.⁵

The dye was manufactured in Gujarat through natural evaporation during the 17th century, and no

1. Cf. Watt, *CPI*, p.666; Ashin Das Gupta, *Indian Merchants*, op.cit., pp.58-59.

2. *EFI*, 1642-45, p.85.

3. *Ibid.*; Watt, *DEP*, IV, p.434.

4. Ashin Das Gupta, *Indian Merchants*, op. cit., p.59.

5. *Ibid.*; Ishrat Alam, 'New Light on Indigo Production Technology', op.cit., p.119.

boiler was used for that purpose.¹ In the Bayana tract, however, we find a reference to the use of boiler as early as 1609.² But that was very rare and it continued to be made through the process of natural evaporation there.³ It is evident from the descriptions of indigo manufacture in Gujarat by Terry, Mandelslo, Geleynssen de Jongh and Tavernier, that it was only by exhalation the liquid or pulp was reduced to the semi-solid indigo dye.

After the sun had removed the moisture the remaining semi-solid matter was taken out of the vat and was converted into cakes; this was termed 'flat' indigo.⁴ In Bayana the final shape was globular and so it was called 'round' indigo.⁵ However this was not uniform custom and there was a persistent tendency among the producers in Gujarat to make 'round' indigo in the

1. Van Linschoten, op.cit., II, p.91; Tavernier, op.cit., II, pp.8-9.

2. Joseph Salbancke in *Purchas His Pilgrims*, III, p.85.

3. Pelsaert, op.cit., p.11.

4. Nicolas Withington (1612-16) in *Early Travels*, op.cit., p.207; Tavernier, op.cit., II, p.11; W.H. Moreland, *From Akbar to Aurangzeb*, op.cit., p.109.

5. Tavernier, op.cit., II, p.9; Pelsaert, op.cit., p.11; Moreland, *From Akbar to Aurangzeb*, op.cit., p.109.

Bayana fashion.¹ Sometimes the merchants were cheated by the dye-makers, who produced 'round' indigo in the Bayana fashion and sold it as such.² Therefore there was a definite preference at least by the English merchants to the 'flat' variety over the 'round' sort which is evident from the company's instruction to the factors for the purchase of 'flat' indigo.³ The 'flat' variety was also preferred over the round by virtue of its suitability in packing.⁴

(II,B) Adulteration of Indigo

An important feature of the indigo manufacture in Gujarat was the extent of possible adulteration. Our sources invariably refer to it right from the sixteenth century.⁵ This fraud was committed at different stages

1. *Letters Received*, III, p.40; *EFI*, 1642-45, pp.85, 122, 126, 164-65; *EFI*, 1655-60, p.165.

2. *EFI*, 1642-45, p.122.

3. *EFI*, 1642-45, pp.122, 202; *EFI*, 1655-60, p.165.

4. Indrani Ray, 'Of Trade and Traders in 17th Century India. An Unpublished French Memoir by George Roques', *IHR*, IX, Numbers 1-2, July 1982 - January 1983, p.119. Moreland has also suggested that the use of round indigo in some cases attended technical difficulties in England (Moreland, *From Akbar to Aurangzeb*, op.cit., p.109).

5. Van Linschoten, op. cit, II, p.91.

of indigo manufacture. At first indigo was adulterated in the manufacturing process itself when a quantity of oil, pimple, and dirt or mowry¹ was put into it.² Mandelslo tells us that the people adulterated indigo by mixing earth of the same colour and where the dye was judged by its lightness they put oil into it to make it swim upon water.³ Sometimes the juice of a tree bark was mixed into the pulp before it was finally dried and converted into cakes.⁴ Our sources frequently refer to the mixing of sand with indigo paste before it was made into cakes.⁵ Generally the manufacturers put the 'flat' cakes to dry on sandy ground where the wind blew dust on it and thus much sand was fastened on to the cakes and made them weigh more.⁶ Merchants while purchasing indigo

1. Mowry or Mouri was a superfine red sand found near Sarkhej (Ishrat Alam, 'New light on Indigo Production Technology', op.cit, p.124).
2. *EFI*, 1655-60, p.18.
3. Mandelslo in Watt, *CPI*, p.666.
4. *EFI*, 1642-45, p.4.
5. *Letters Received*, II, p.281; *EFI*, 1637-41, p.233; Indrani Ray, op.cit, p.119; Tavernier, op.cit., II, p.9.
6. Indrani Ray, op. cit., p.119; Tavernier, op.cit., II, p.9.

used to judge its quality by either burning a little indigo so that if no dust remained at the end the indigo was good, or by throwing it into water: if it was light and swam on the water, the indigo was judged pure.¹ If it did not swim the quality was coarse. In spite of such precautions we find frequent complaints and consequent warnings to factors in Gujarat responsible for the purchase of indigo.² In a report of 1774-75 it is suggested that at Cambay indigo was frequently adulterated with red earth which added to its weight while rendering it coarse.³

Besides the practice of adulteration by the producers there was also the fraud of substituting the indigo with sand and stone. The English Factory Records tell us that this fraud was probably committed at Swally Marine where such practices were very common.⁴ It was also suspected that the substitution was made at 'Raneal' (Rander) while the goods were waiting for the

1. Van Linschoten, *op.cit.*, II, p.91; Mandelslo in Watt, *CPI*, p.666.

2. *EFI*, 1637-41, pp.224-45, 233; *EFI*, 1642-45, p.202; *EFI*, 1646-50, pp.12, 202.

3. *Oriental Memoirs*, *op.cit.*, II, p.19.

4. *EFI*, 1637-41, pp.224-5.

custom officials' 'chop' or seal and license to proceed to Swally; or it might have been done by the carters who took them down to the ship mixed the dirt with indigo.¹ The putting of the sand in the fardle while packing was, however, unavoidable. This was done to preserve the 'flat' indigo from breaking.² The sand was put between the pieces; hence this was not included in the weight but added afterwards.³

The fierce competition among the merchants, particularly the Europeans, often induced the manufacturers to adulterate indigo with a view to inflating the supply. In 1640 the English and other merchants approached Khan Azam, the governor of Gujarat, and complained about the adulteration. The governor responded by imposing death penalty upon persons found guilty of this offence.⁴ As a result the indigo makers began to make purer indigo.⁵ But the Governor's

1. *EFI*, 1637-41, p.274.

2. *EFI*, 1642-45, p.202.

3. *Ibid.*

4. *EFI*, 1637-41, pp.273-74.

5. *EFI*, 1642-45, p.5.

injunction to manufacture pure indigo, supposedly took away incentives and discouraged them from undertaking indigo manufacture themselves. They preferred to sell the indigo leaf, rather than the dye.¹ The practice of indigo adulteration continued thereafter. The English put the blame on the Dutch and the interloping merchants and held them responsible for this.² In 1655 it was reported that adulterated indigo dye was purchased by the English factors at 18-1/8 rupees per maund; as long as the producers were able to sell their commodity at such a high price, pure indigo was not expected.³ This practice of adulteration became one of the many reasons behind the decline of indigo trade in the second half of the seventeenth century as it brought much disrepute to Sarkhej indigo.⁴

(II, C) Organisation of Indigo Production

The production of indigo dye was organised in two distinct stages. The first stage comprised the

1. *EFI*, 1646-50, p.33.

2. *EFI*, 1630-33, p.13.

3. *EFI*, 1655-60, p.18.

4. *EFI*, 1637-41, pp.273-74; *EFI*, 1646-50, p.32.

cultivation of the plant as a crop. The second was that of processing indigo leaf (and stalks) to manufacture the dye. It can be assumed that the organisation of the crop was in the hands of the peasants, the time of the 'plantations' having not come yet. In the first quarter of the seventeenth century it seems that the peasants who grew the indigo crop also manufactured the dye, and the functions of cultivation and manufacture were not yet separated. In the description of indigo cultivation and manufacture of indigo in Gujarat by Van Linschoten (1583), Edward Terry (1622) and Geleynssen de Jongh (1638-40), there is no indication that the grower of the leaf and the manufacturer of the dye were different people.¹ It is true that these writers were primarily concerned with the process of production, and who processed it mattered little for them. The fact, however, that there is as yet no evidence of the sale or purchase of the indigo crop off the field suggests that indigo-growing and manufacture were not the concerns of separate classes. The reference to the producers and

1. Van Linschoten, op. cit., II, p.91; Terry and Mandelslo in Watt, CPI, p.666; Geleynssen de Jongh, Remonstrantie, op.cit., pp.46-47.

cultivators and growers selling manufactured indigo to merchants as poor country people is also in conformity with the inference that the peasants were themselves manufacturers.¹

Since the stage of manufacture required a substantial capital for the instalments like vats and wells and for wages paid to labourers, it is reasonable to think that the ordinary peasants could not have afforded these expenses on their own. Hence the possibility of some rich merchants and *banyas* financing the peasants can not be ruled out. Moreland, indeed, speculates that in Gujarat the business of manufacture was in the hands of local 'capitalists' who presumably financed the growers.² George Watt says that a 'factory' of a primitive kind was made by speculators who hired it out to the growers who themselves worked as manufacturers.³ He tells us that the 'factory' (consisting of vats) existed at a distance from the field and leaves had to be carried to it, and each

1. *Letters Received*, II, pp.153, 188; *DFI*, 1617-23, p.61.

2. Moreland, *From Akbar to Aurangzeb*, op.cit., p.193.

3. Watt, *DEP*, IV, p.434.

grower had to wait for his turn to be able to use it.¹ Since the cutting of the plant could not be delayed, the 'dry leaf' process enabled the producers to manufacture it at the convenience of the owner.² The ordinary producers, even if financed by the 'capitalists' or speculators, did not lose the ownership of the produce. Unlike the weavers working for particular merchants, who provided them with materials or funds in return for a guaranteed supply,³ the peasant manufacturers of indigo were not under any obligation to sell to a particular merchant or *banya*. We do however find the latter engrossing indigo supplies for sale at advantage to outside buyers.⁴ This was probably due to the poor circumstances of the producers which forced them to dispose of their produce as early as possible.⁵

In the 1630's we notice a change in the organisation of indigo production in Gujarat, for we

1. Ibid.

2. Watt, *DEP*, IV, p.434.

3. K.N. Chaudhuri, *The Trading World of Asia and the English East India Company 1660-1760*, New Delhi, 1978, p.253.

4. *EFI*, 1630-33, p.20.

5. *Letters Received*, II, pp.153, 188.

find cultivation and manufacture becoming some times two distinct occupations. The famine of 1630-31 and its devastating nature seems to have helped bring about this change. The number of working hands dwindled due to the heavy loss of life and emigration.¹ This adversely affected the indigo industry as labour became scarce. In 1631 it was reported that a plentiful crop was spoiled on the ground due to the non-availability of people to gather it.² The scarcity was such that half of the produce was offered to the labourers for reaping and making indigo at Sarkhej.³ When the peasants were able to work on the field again, they were naturally short of resources and the new situation forced them to sell their crop. The indigo leaf accordingly became a marketable commodity and we find frequent reference to the price and sale of indigo leaf as separate from the dye which was extracted from it.⁴

1. Ali Mohammad Khan, *Mirat-i Ahmadi*, Bombay, p.216.

2. *EFI*, 1630-33, p.178.

3. *EFI*, 1630-33, p.178.

4. *EFI*, 1634-36, p.292; *EFI*, 1646-50, p.161; *EFI*, 1655-60, p.76.

Taking advantage of this situation the *banyas* and rich merchants increasingly undertook the manufacture themselves. Having sufficient capital, they began to set up vats, employ labourers and organise the manufacture of the dye. The English factors, too, partly forced by their desire to get pure indigo but largely to minimise costs attempted to buy indigo leaf and manufacture dye under their own supervision.¹ They employed experienced men and hired labourers to accomplish the design.² This attempt was seen as an encroachment on their privileged sphere by the *banyas*. A French traveller in the late 1670's reports, "[The] English once had a try at manufacturing indigo themselves, bought a good deal of leaves in order to carry out the design. But the *Banyas*, jealous of being deprived of this job managed so well the workers who worked at it that they spoiled everything and caused them (the English) to lose more than twenty thousand rupees."³

1. *EFI*, 1634-36, p.292; *EFI*, 1646-50, pp.77, 161, 189, 202; *EFI*, 1655-60, p.18.
2. *EFI*, 1634-36, p.292, *EFI*, 1646-50, p.77.
3. Indrani Ray's translation from the French, 'Of trade and traders in seventeenth century India', op.cit., p.119.

Our sources do not tell us how many labourers were needed to work on a set of vats. A late 17th century account says that 4 men and 4 women were required to work in the second vat and this work was skilfull and rhythmic.¹ Besides some workers were also required to take the pulp out of the vat and give the cake its final shape. The report also says that they were very poorly paid.² The implication that a class of wage-labourers existed is of some interest. Since the peasants, in many cases were unable to undertake the processing of the dye themselves, there had to come into being a class of workers which was skilled in this craft and was ready to render his services on demand to the *banyas* or the English factors.³

The production mechanism therefore apparently underwent a change in the first half of the seventeenth century: a partial shift, at least from peasant-organised indigo manufacture to merchant-supervised processing.

1. Van Heck (1681-1700) cited by Ashin Das Gupta, *Indian Merchants*, op.cit., p.60.

2. Ibid.

3. Indrani Ray, op.cit., p.119; *EFI*, 1646-50, p.77.

CHAPTER THREE

Indigo Trade

(a) The Portuguese

Indigo was a celebrated article of export from India to the Asian and European markets throughout the sixteenth and seventeenth centuries. It constituted an important item of the Levant trade in the sixteenth century. With the discovery of the Cape of Good Hope, the European markets were directly connected with India under the aegis of the Portuguese. During the sixteenth century the Portuguese dominated much of the oceanic trade, by levying tribute on the Red sea trade as well. Their *Stado da India* established in the first half of the sixteenth century was mainly concerned with the establishment of monopoly of the spice trade.¹ The use of force by the Portuguese put them in prolonged hostility with the Mughal authorities in Gujarat. Hence their penetration into the hinterland of Gujarat ports was limited. They could not make the indigo producers and suppliers of Gujarat sell exclusively to them as the Dutch were able to do in the Coromandel in the first

1. M.N. Pearson, *The New Cambridge History of India, The Portuguese in India*, Hyderabad, 1987, pp.37-39.

half of the seventeenth century. Although the Portuguese had their resident merchants¹ at Ahmadabad and other places, they depended for their supplies of indigo on the other merchants, who brought it from the centres of production to the port towns of Cambay and Surat.

The demand for Gujarat indigo was fairly large in Portugal, as Linschoten (1583-89) notes.² In 1588 indigo trade with India was farmed out to a company and no private Portuguese was allowed to buy it in India for export to Europe and Portugal.³ In the absence of any statistical data the magnitude of the Portuguese trade in Gujarat indigo in the sixteenth and early seventeenth centuries is hard to determine. In the beginning of the seventeenth century it is reported that a large fleet of Portuguese frigates⁴ used to come annually to the ports of Gujarat to purchase loadings for their

1. Leagers i.e., resident, for which see John Jourdain, op.cit., pp. 2n, 173.
2. Van Linschoten, op.cit., II, p.91.
3. Bal Krishna, *Commercial Relations between India and England*, London, 1924, p.45.
4. Frigates or foists were quite small vessels of about 50 tons, used mainly in the coastal trade but also sent on open sea voyage (Van den Broeke, op.cit., p.237)

carracks.¹ Thomas Best, testifying to the great trade the portuguese had at Cambay, writes that a fleet of more than 200 ships all Portuguese, used to come every year and procure from Cambay the greatest part of the lading which the carracks² and gallions³ carried to Portugal.⁴ Indigo must have constituted a fair proportion of this trade. In the first two decades of the seventeenth century, the Portuguese were still substantial buyers of indigo in Gujarat. The English used to be apprehensive of the presence of the Portuguese among other buyers, which naturally raised prices.⁵ Since the Portuguese had nothing to offer for indigo except bullion, their investment in that commodity was conditional upon the arrival of ships from Goa: their investment suffered a set back in 1613 when no ships arrived from Portugal with sufficient capital.⁶

1. *Letters Received*, III, p.XIII.
2. Large ships employed by the Portuguese in their trade with Europe (Van den Broeke, op.cit., p.237).
3. Large Portuguese war ships, which could also be rowed as well as sailed (Van den Broeke, op.cit., p.237)
4. Best in *Purchas His Pilgrims*, IV, p.128.
5. *Letters Received*, IV, p.292; VI, p.165.
6. *Letters Received*, I, pp.305-6.

The biggest obstacle to their trade was their constant conflict with the authorities. Reports of 1614-15 suggest that the Portuguese could not procure indigo for the previous three years due to the hostility of the local people.¹ The reference to the Portuguese being in war with the 'country people' and 'Moors' of Gujarat is quite interesting since it has been argued they were on cordial terms with the local authorities and had jointly resisted the consolidation of English trade at Surat.² In 1617 however their trade in Sarkhej indigo showed an upward trend as they again began to buy it at Sarkhej.³ In 1618 they purchased about 1000 packets of indigo at Surat, and in the same year by another report they are said to have procured about 5000 packets of Sarkhej indigo.⁴ Their procurements of indigo at Cambay and Surat were sent to Goa from where ships laden with

1. *Letters Received*, II, pp.241, 247, 260; III, pp.XIII, II, 38, 50-51, 69-70.
2. Pelsaert, *op.cit.*, p.20. See Farhat Hassan, 'Anglo-Mughal Commercial Relations at Surat, uptill the first half of the seventeenth century', *PIHC*, Calcutta, 1990, pp.273-74;
3. *Letters Received*, V, p.133.
4. *DFI*, 1617-23, pp.61-62.

indigo, pepper and spices left for Portugal. It is not known from our sources whether they also supplied indigo to the markets in the Persian Gulf and the Red Sea. It seems that Indian, Persian and other merchants continued to supply indigo to the markets, and that, except for the compulsion of purchasing the passport (*cartaz*) from the Portuguese, they continued to monopolise this lucrative branch of commerce between Gujarat and Mocha on the Red Sea and Ormuz in the Persian Gulf.¹

The Portuguese dominance over the West Indian maritime commerce of which indigo trade was a major component, began to be challenged by the Dutch and the English from the beginning of the seventeenth century. The Portuguese were by now held in esteem by the Governors, brokers and other people of Gujarat.² Muqarrab Khan, the officer in charge of Surat (1613-14) and later Governor of Gujarat was friendly to the Portuguese.³ The merchants of Gujarat too preferred to deal with the Portuguese rather than with any other European Company because the Portuguese were reputedly

1. Bal Krishna, *op.cit.*, pp.7-8.

2. *Letters Received*, II, p.292; III, p.38.

3. *Letters Received*, II, p.151; IV, p.292.

content with a low margin of profit and so could purchase Indian commodities especially cloth and indigo at a higher price than the English and the Dutch.¹

Portuguese power in India witnessed a sharp decline in trade, and a financial crisis ensued due to the contraction in the revenues of their ports in the first half of the seventeenth century.² Despite this general decline, however, indigo continued to enjoy the place of importance in the Indian exports to Portugal. The Portuguese India Company continued to supply indigo to Europe's textile and woolen industries. In 1630 it exported about 325 quintals of indigo to Lisbon, and this amounted to 11.5 per cent. of the total value of the Company's exports.³ The Company purchased it at 60 xerafins⁴ per quintal from a Gujarati trader and from its sale at home, earned a gross profit of 126 per cent.

1. *Letters Received*, III, pp.50-51, 69; C.R. Boxer *The Portuguese seaborne Empire*, London, 1969, p.124.

2. A.R. Disney, *Twilight of the Pepper Empire*, London, 1978, pp.50-70.

3. *Ibid.*, p.113.

4. A silver coin current at Goa and other Eastern ports, which was somewhat less than Is. 6d. in value (Hobson Jobson ed. William Crooke, New Delhi, (Reprint), 1995, p.974.

on one ship's cargo and 116 per cent. on that of another.¹ It is however not certain whether the procured indigo was of the Sarkhej variety or any other sort.

In the 1620's the Portuguese preponderance in the western Indian Ocean began to wane and their trade at Cambay and other Gujarat ports declined. A Dutch report says that whereas there used to come every year 200 to 300 Portuguese fusts (frigates) to Cambay and Surat, in 1621 only 50 to 60 came and the goods carried were also of small value.² Pelsaert too referring to the declining trade of Cambay says that in 1626 only 40 merchant fustas arrived with goods of little value and that this was the cause of the decline of Cambay and indeed of all Gujarat.³ Thus by the end of the first quarter of the seventeenth century the Portuguese commerce in Gujarat sharply declined, affecting, undoubtedly, their trade in indigo. After the 1620's, it were the English and the Dutch, who became the principal foreign exporters of indigo from Gujarat.

1. A.R. Disney, op.cit., p.113.

2. DFI, 1617-23, p.151.

3. Pelsaert, op.cit., p.20.

(III, b) The English Company

The English East India Company founded in 1600 began her commercial activities in India first at Surat. They were initially opposed by the Portuguese and the local merchants of Gujarat; hence their efforts to get official favour from the emperor. Once the English got their factory established at Surat through the *farman* issued by Jahangir in 1618, they began to expand their commercial activities to other parts of the province. They had already explored the sources of supply of indigo which they had first procured from the local merchants at Surat.¹ They now felt the need to establish subordinate factories for the purchase of indigo directly from the producers.² As Foster has pointed out, for the economical purchase of indigo they had to make arrangements early in each season with the growers and as they had to advance money and arrange for the sale/barter of English goods, permanent residence at Ahmadabad and other places was advisable.³ Factories

1. *Letters Received*, III, pp.11, 38.

2. *Ibid.*, II, p.153.

3. William Foster, *England's Quest of Eastern Trade*, London, 1933, p.314.

were set up at Ahmadabad, Broach, Cambay and Baroda.¹ That Ahmadabad became the chief factory after Surat due to the convenience of procuring Sarkhej indigo and high-quality textiles manufactured at Ahmadabad itself.² The factors needed to have a sufficient stock of capital at Ahmadabad for the purchase of indigo from the country people who were eager to see competition among the buyers, since otherwise they used to sell indigo at very low prices to engrossers.³

Since indigo was in much demand in European markets, it accounted for maximum investment by the English in Mughal Empire in their early days. In 1614-15 they found indigo much declined in price due to the protracted war between the Indians and the Portuguese, and bought a large quantity of it for lading their ships sailing back to England.⁴ In February 1615 they bought about 1200 churles of indigo while in March 1615 they were able to purchase at Sarkhej and Ahmadabad about

1. Ibid.

2. Ibid.

3. *Letters Received*, I, pp.305-6; II, pp.152-53.

4. Ibid., II, p.247; III, p.XIII.

1273 churles.¹

The *Globe* sailing directly for England in 1617, too had a large amount of both Sarkhej and Bayana indigo in her cargo.² In the cargo of *Royal Anne* indigo accounted for about 90% of the total value.³ It should be noted that the quantities of indigo supplied during the first quarter of the seventeenth century, were determined more by its availability at reasonable rates in India than the magnitude of demand at home. This is borne out from a letter of 1614 from Ahmadabad where the intention is conveyed of lading just a few calicoes or other commodities if sufficient indigo could be procured at a given price.⁴ A similar attitude can be discerned from another letter of 1615.⁵

In the total export of indigo from India by the English during this period the proportion of Sarkhej

1. Ibid., III, pp.16, 32. See Appendix 'A'.

2. Ibid., V, pp.109-10.

3. *EFI*, 1618-21, p.61; Shireen Moosvi, *The Economy of the Mughal Empire C. 1595: A statistical study*, New Delhi, 1987, pp.282-83.

4. *Letters Received*, II, p.152.

5. Ibid., p.32.

variety was substantially higher than of Bayana indigo. The cargo of the *Hope* (1615) consisted of 1421 churles of indigo probably all of the Sarkhej variety, while 33 bales (7260 lbs) were those of the Bayana indigo which came late and, the *Hope* being full, had to be put laden in the *Hector*.¹ The cargo of the *Globe* (1617) too had 1167 fardles (6632 small maund) of Sarkhej indigo as against 354 fardles (1420 Agra maund) of Bayana indigo.² The price differentials of Sarkhej and Bayana indigo, without there being corresponding difference in values in England and Europe, naturally encouraged a larger investment in the Sarkhej indigo, as against the Bayana variety.³

The English began to face problem from 1617 when the market in Gujarat became competitive due to the prescence of a large number of indigo buyers for the Red Sea market and other places.⁴ In the 1620's came the appearance of the Dutch as substantial buyers of indigo.

1. Ibid., pp.69, 83.

2. *Letters Received*, V, pp.109-10.

3. Ibid., III, p.69; V, p.340; *EFI*, 1624-29, p.63.

4. *Letters Received*, V, p.133.

The multiplicity of buyers tended to raise indigo prices.¹ The supply too at Sarkhej was insufficient; hence the English began to look towards other places of supply. English factors visited Dholka in 1622 to enquire about its indigo.² They also examined the indigo produced at Jambusar which they found inferior for export purposes.³ The English tried to conclude an agreement with the Dutch to purchase indigo in common and divide it equally.⁴ But this did not prove affective and the Dutch competition continued to affect the operations of the English adversely.⁵

Apart from this external competition the English factors had some internal difficulties too as private traders did much damage to the Company's interest. Private trade by English factors in indigo was prohibited by Thomas Roe, and it was declared a

1. *EFI*, 1618-21, p.324; *EFI*, 1622-23, pp.328-9, 331.

2. *EFI*, 1622-23, pp.158, 162.

3. *Letters Received*, II, p.253; VI, pp.215-16; *EFI*, 1618-21, p.291.

4. *EFI*, 1624-29, p.111.

5. *EFI*, 1630-33, pp.13, 19-20, 125.

Company's commodity.¹ No servant of the company was allowed to export it on his private account to England. When Peter Mundy brought home some goods as a private trader which also included indigo, the home authorities withheld indigo while allowing the delivery of other goods, despite the fact that he was specially recommended for favour by a senior factor in India.² They however allowed payment to him for the indigo consignment at the Company's price free of freight, custome and other charges.³ But private Englishmen continued to export indigo to England in the Company's homegoing ships. In 1623 the Dutch factors reported considerable private trade by the English.⁴ In 1643 a large amount of private trade in indigo to the extent of 40,000 lbs. was discovered which, it was alleged, had diminished the price of indigo in England.⁵ In 1644 too

1. *Embassy of Sir Thomas Roe to India, 1615-19*, ed. W. Foster, Jalandhar, 1993, p.417.
2. *Travels of Peter Mundy in Europe and Asia*, II, ed. R.C. Temple, London, 1914, pp.337-38.
3. Ibid.
4. *DFI*, 1617-23, p.286. 47. *EFI*, 1642-45, p.123.
5. *EFI*, 1642-45, p.123.

the home authorities complained about the adverse affects of the private trade on the Company's markets.¹ The English authorities in India promised to make strenuous efforts to check this illegal traffic, but almost everyone was involved in it.

From 1629 onwards we find that the English restricted their purchase of Sarkhej indigo, largely due to its high price, and enhanced their procurements of the Bayana indigo.² In this year they shipped 1200 fardles of Bayana indigo.³

The rising price of indigo due to the multiplicity of buyers, and its scarcity after the terrible famine (1630-31) and devastation of the crop by excessive rains (1631-32), forced the English to look more towards Agra and Bayana for their supplies to the home markets.⁴ In 1633 Shahjahan introduced indigo monopoly and the sale of Agra indigo was farmed out to Manohar Das for Rupees

48. Ibid., p.202.

49. *EFI*, 1630-33, p.61.

50. *EFI*, 1624-29, p.335.

51. *EFI*, 1630-33, pp.125, 255, 323. In 1633 both the varieties were reportedly equal in price (Ibid, p.323).

1,100,000.¹ This monopoly was extended to Gujarat as well.² The English (so also the Dutch) were made to purchase indigo from the monopolist at the price arbitrarily fixed by him. To avoid this the English proposed to the Dutch to jointly abstain from buying indigo for one year.³ This bold measure did not materialise. The English thereupon ordered the closure of their factories at Agra, Ahmadabad, Cambay and other places.⁴ The monopoly was also opposed by indigo cultivators; and Shahjahan had to rescind the monopoly in 1635.⁵ The farman dissolving the monopoly was read out by the Governor of Surat in February 1636 to both the English and the Dutch.⁶

1. *EFI*, 1630-33, p.324; Bal Krishna, op.cit., p.95.
2. *EFI*, 1634-36, p.7.
3. *EFI*, 1630-33, pp.325, 327-28; *EFI*, 1634-36, pp.69-70.
4. *EFI*, 1634-36, pp.71-2; Bal Krishna, op.cit., p.95.
5. Collection of Persian Documents of Surat, preserved in Bibliotheque Nationale Blochet supplementary Persan 482, Paris. f.98A. A photoprint is in the Research Library, Centre of Advanced Study in History, Aligarh (Rotograph No.299); hereinafter this is referred to as Blochet 482.
6. *EFI*, 1634-36, pp.157, 173.

With the dissolution of the monopoly the English and the Dutch began to compete with each other again. As a result of which the price went up and the manufacturers began to adulterate the commodity.¹ In subsequent years we find frequent complaints about the quality of the dye in the correspondence of the English factories.² They tried to exert political pressure on the producers to force them to manufacture pure indigo as we have already seen, but this created further problems. Production declined and it became difficult for the English to procure the required quantity from Ahmadabad.³ The Governor's instructions for making pure indigo was put aside after some time and the practice of adulteration continued in subsequent years.⁴ Under these circumstances the English thought of manufacturing indigo from the leaf under their own supervision.⁵ But this experiment did not succeed, as we have seen in the preceding chapter.

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1. *EFI*, 1637-41, pp.91-92; *EFI*, 1642-45, p.202.
 2. *EFI*, 1637-41, pp.58, 91; *EFI*, 1646-50, p.12.
 3. *EFI*., 1646-50, pp.77, 160.
 4. *Ibid.*, p.305.
 5. *Ibid.*, p.254.

The practice of adulteration brought much disrepute to Sarkhej indigo in the markets abroad, specially England and Europe. In 1646 it was declared unworthy of being brought home from India.¹ Thus by 1650 English trade in Sarkhej indigo had entered difficult circumstances and the contraction of demand at home accentuated the difficulties.

In the second half of the seventeenth century the European markets for Sarkhej indigo were affected by the imports of indigo from West Indies and Spanish America which were procurable at quite low rates (owing to the use of slave-labour) and incurred lower transportation charges.² This depressed the price of Indian indigo in Europe and its trade no more remained as lucrative as before. The English authorities at Surat now intended to close altogether the factory at Ahmadabad in 1656.³

1. *EFI*, 1646-50, p.32.

2. *EFI*, 1655-60, p.322; *EFI*, (New Series), ed. Sir Charles Fawcett, III, p.245; K.N. Chaudhuri, *The Trading World of Asia*, op.cit., pp.331-3. Spain began to get indigo from America from as early as 1587 and a large consignment was recorded in 1628. In 1633 the supply reached London from Guatemala. In 1645 the English Company ordered the reduction of exports from Surat for the explicit reason that the West Indies were producing so much indigo (Moreland, *From Akbar to Aurangzeb*, op.cit., p.113).

3. *EFI*, 1655-60, p.74.

The home authorities introduced the price ceiling for indigo in India.¹ In the 1660's the market for Sarkhej indigo slightly improved, and in 1663 about 200 bales were ordered.² But the high prices continued to obstruct supplies and in 1664 only 50 bales were ordered with the provision to double this figure if it was procurable at $3/4$ mahmudi per pound.³ In the subsequent years the demand for Sarkhej indigo remained at its lowest varying from 100 bales to 200, with occasional rise in its quantity.⁴ Thus, it rose to 300 bales in 1670 and 400 bales in 1671.⁵ It became profitable again in 1683 when the Court of Directors ordered a doubling of the quantities to be sent from Surat.⁶ A similar improvement took place in 1693 when there were

1. *EFI*, 1655-60, pp.322, 336; *EFI*, 1661-64, pp.199, 326; *EFI*, 1665-67, pp.17, 168; *EFI*, (New Series) III, p.245; K.N. Chaudhuri, *The Trading World of Asia* op.cit., pp.331-32.

2. *EFI*, 1661-64, p.199.

3. *Ibid.*, p.326.

4. See Bal Krishna, op.cit., (Appendix C), p.303.

5. *Ibid.*

6. K.N. Chaudhuri, *The Trading World of Asia*, op.cit., p.333.

substantial imports of Sarkhej indigo into England.¹ Overall, however, the English trade in Indian indigo suffered through the strong West Indian competition and shrank to small dimensions. It came practically to an end in the first quarter of the eighteenth century.²

The English, unlike the Portuguese, extended their trade in indigo from Gujarat to the markets of the Red Sea and Persian Gulf. Here they found much competition. The Armenians, Persians and other Asian merchants maintained a constant supply of indigo from Gujarat; and the English earned much income from the freight on cargoes shipped by their competitors to these markets!³ The facility of using English ships on freight extended to the Asian merchants often created problems for the English. We find English factors complaining about the arrival of many buyers in Gujarat from Persia in English ships pushing the prices up and making the commodity scarce.⁴ They therefore proposed some restraint in taking passengers and cargoes in the returning ships.⁵

1. Ibid.

2. Moreland *From Akbar to Aurangzeb*, op.cit., p.113.

3. *DFI*, 1617-23, p.286; *EFI*, 1634-36, p.142.

4. *EFI*, 1630-33, pp.59, 125.

5. Ibid., p.59.

(III, C) THE DUTCH

The United Dutch East India Company (De Vereenigde Oost Indische Compagnie: VOC) was formed in 1602. Even before the formation of VOC individual Dutch merchants or factors of the earlier companies had reached Surat, and indigo being much in demand in European markets caught their attention as early as 1601.¹ In 1607 the VOC's factor Van Deynsen was reportedly arranging to buy indigo there.² However Dutch activities remained insignificant till 1617 when Peter van den Broeke established the official factory at Surat.

The initial objective of the Dutch headquarters at Batavia to establish a factory at Surat was to procure coarse textiles for the Spice Islands.³ From the sale proceeds of textiles there the Company purchased pepper and spices. Very soon the factors at Surat realised the importance of indigo for the home-bound consignments, it being available at Surat in large quantities and of a superior quality than the sort obtained from

1. Moreland, *From Akbar to Aurangzeb*, op.cit., p.109.

2. Ibid.

3. Owen C. Kail, *The Dutch in India*, New Delhi, 1981, p.50.

Coromandel.¹ Initially, the Company ignored the indigo from Gujarat and the factors at Surat were instructed to invest the available capital mainly in textiles to be sent to the Spice Islands.² Indigo for the European markets was to be procured only when the investment in textiles had been completed and funds were still available.³

Gradually the authorities at Batavia realised the potentiality of profit in securing Gujarat indigo for the home markets. Surat happened to be one of the largest markets in Asia for the spices and indigo could be a commodity conveniently obtained in exchange of spices sold by the Dutch there.⁴ The rising price of the Coromandel indigo also probably led to this change of attitude in favour of supplies from Surat. In the cargo of the *Zwarte Beer* (1615-16) from Masulipatam to Holland, indigo accounted for 48.3% of the total value;

1. *DFI*, 1617-23, pp.171, 237.

2. *DFI*, 1617-23, pp.175, 202, 217, 221.

3. *Ibid.*

4. Om Prakash, *Precious Metals and Commerce: The Dutch East India Company and the Indian Ocean Trade*, Great Britain, 1994, Chapter I, p.197.

it went down to 38.5% in 1619 although its quantity in absolute terms was higher than in the former consignment.¹ The proportion was 24.5 per cent. in 1621, and nil in the cargo of Naarden in the same year (Oct. 1621).² From the value of indigo given in the invoices it appears that the price of indigo increased as the share in the total value of the ship's cargo diminished.³ Besides, the quality of indigo exported from Coromandel was also inferior to that of Gujarat.⁴ Therefore it was obvious that the Company would rely

1. Moreland, *From Akbar to Aurangzeb*, op.cit., pp.317-19.
2. Ibid.
3. Ibid.
4. *DFI*, 1617-23, pp.171, 237. Tapan Raychaudhuri's view that the home authorities decided in favour of Coromandel indigo after 1625 because it was deemed best, does not seem to be convincing (Tapan Raychaudhuri, *Jan Company in Coromandel, 1605-1690*, S-Gravenhage, 1962, p.163). It was widely recognised that the Sarkhej indigo was the best in Gujarat and inferior only to Bayana, while the Coromandel indigo was inferior to that of Sarkhej (*DFI*, 1617-23, pp.151, 171, 273). Wouter Heuten (1617) states that the Sarkhej indigo was next in quality only to that produced in Bayana (cited by Om Prakash, *Precious Metals and Commerce*, op.cit., Chapter XVI, p.72). Secondly, the total annual demand for Sarkhej indigo remained equal and most of the times higher than the Coromandel indigo from 1633 to at least till 1670 (see Appendix 'B').

much on Surat for the supply of this commodity of which the Bayana variety would of course have a greater proportion. The Dutch also knew that the highest profit in Holland was afforded by the best quality indigo; hence the emphasis on the procurement of Bayana indigo in larger quantities.¹ Sarkhej indigo could be purchased only if an adequate quantity of Bayana indigo was not available.² The poor quality indigo was to be bought only if procurements of the superior sorts failed.³ A look at the list of orders for indigo prepared from the 'Resolutien genomen op de ordinarijs en extraordinarijs vergaderingen van Heeren XVII' (Resolutions taken at the ordinary and extraordinary meetings of the Gentlemen XVII) from 1633 to 1700 reveals that throughout the century the Dutch Company's annual demand for Bayana indigo remained substantially higher than for the Sarkhej with the sole exception of 1633 and 1662 when the orders for Sarkhej indigo were

1. *DFI*, 1617-23, pp.45, 175. Orders were to be supplied to the extent of three fourths (3/4) in indigo 'Lauro' (Bayana) and the remaining one fourth (1/4) in 'flat' (Sarkhej) indigo (*DFI*, 1617-23, p.237).
2. *DFI*, 1617-23, pp.143-44.
3. *Ibid.*, pp.45, 237.

higher.¹ This list also reveals that the Gujarat indigo enjoyed a definite preference over the Coromandel variety from 1635 to at least till 1670 whereafter the quantity ordered from the Coromandel exceeded that of the Sarkhej indigo.² Unless a corresponding exhaustive list of the actual exports of each variety is available, it would remain a matter of conjecture as to what proportion in the total Dutch exports was actually formed by each variety sent from India each year or over a period of years.

The scale of procurement of indigo depended very much on the price of a particular variety in a season. The factors seem to have had the liberty to modify the orders from home according to the prevailing circumstances. When in 1621 they found the Sarkhej indigo selling at two-thirds of its previous year's price they bought a large quantity (about 42,000 'ponds') of it instead of textiles, contrary to the

1. See Appendix 'B', I have reproduced this list from an unpublished paper, "Gujarat and Coromandel as Rival Exporters in Seventeenth Century: A Study in Dutch Documents", by Ishrat Alam presented in the Medieval India section of the Indian History Congress, Gorakhpur Session, 1989.

2. See Appendix B.

instructions issued from Batavia.¹ In 1623 about 22 packets of flat Sarkhej indigo were sent to Holland.² Since there were rival sources of supply of indigo within India it was the price (both the price at which indigo was bought in India and the sale price in Holland), which decided whether or not a particular variety was a profitable item of export.³ When the Dutch factors at Surat noticed in 1623 that the price difference in Holland between the Sarkhej and Bayana varieties was quite small they decided henceforth to send the cheaper Sarkhej variety.⁴ But there were also periods of high prices and scarcities of indigo in Gujarat, as during the famine years 1630-33, when the supply of Sarkhej indigo failed and the Dutch had to depend more on the procurement of Bayana indigo through their Agra factory.

The Dutch factors at Surat were convinced that to procure the supplies for home their factors had to stay

1. *DFI*, 1617-23, p.216.

2. *Ibid.*, p.237.

3. Kristof Glamann, *The Dutch Asiatic Trade 1620-1740*, 'S-Gravenhage, 1981, p.262.

4. *DFI*, 1617-23, p.266.

in local towns from where they could easily approach the producers in the villages. In a letter to the Directors at Rotterdam in 1620 the Dutch factor Goeree envisaged the establishment of factories at Ahmadabad, Broach, Baroda and Dholka, in imitation of the English company.¹ A factory at Ahmadabad was established in 1620.² The Dutch factors were allowed to buy some poor variety indigo when the supply of high quality indigo was inadequate. They then procured poorer varieties produced in Sarkhej and Jambusar. In 1621 they were instructed to avoid the procurement of such varieties for the time being as funds were scarce.³ In 1623 they reportedly bought 500 churles and were bargaining for 1000 churles more at Dholka.⁴ The English complained that the Dutch bought indiscriminately whatever they got, which often led to the enhancement of prices.⁵ The Dutch too felt the inconvenience caused by the competition and were eager to arrive at some agreement

1. Ibid., p.131.

2. Geleynssen de Jongh, *Remonstrantie*, op.cit., p.26n.

3. *DFI*, 1617-23, p.175.

4. *EFI*, 1622-23, p.185.

5. *EFI*, 1630-33, p.13.

with the English to jointly buy indigo and share it in order to avoid pushing up prices through competition.¹ In 1625 there was a proposal to buy 500 to 600 churles jointly.² Barring a few instances of joint action such as in opposing the imperial monopoly of indigo trade in 1634-35 or in bribing the officials not to obstruct the commerce, the competition for procuring indigo continued unabated in Gujarat. In 1630 the Dutch factors purchased a large quantity of indigo which pushed up the price.³ Geleynssen de Jongh writing around 1638-39 reports that much of the Sarkhej indigo was purchased annually by the Dutch and sent to Holland.⁴ In 1650 they procured about 600 bales of Sarkhej indigo.⁵

From the list of annual demand for indigo (appendix 'B') it appears that the Sarkhej indigo began to lose its market in Europe from 1644 onwards when the

1. *DFI*, 1617-23, pp.143-44; Surat factors instructed to explore the possibility of such an understanding with the English.

2. *EFI*, 1624-29, p.111.

3. *EFI*, 1630-33, p.13.

4. Geleynssen de Jongh, "*Remonstrantie*", op.cit., p.42.

5. *EFI*, 1646-50, p.305.

demand for this sort fell down by more than two-thirds. In spite of some improvements in demand during 1647-50, 1662-71 and again from 1689 to 1695, the pre 1644 level of demand was never achieved. In the last decade of the seventeenth century apart from Sarkhej the Jambusar indigo was specifically asked for (see Appendix B). The sudden fall in the demand for both the Sarkhej and Jambusar indigo from 1697 onwards seems to have been caused by the import of indigo from Java.¹ The Dutch trade in Gujarat indigo during the seventeenth century underwent a similar metamorphosis as that of the English. After enjoying a place of prominence in the Dutch maritime commerce from 1620 to 1643, indigo began to lose ground as the European markets were swamped by the imports of West Indian, American and Javanese indigo; and by the close of the century the trade had practically come to an end.

(III, d) The French

Information specifically related to the French trade in Gujarat indigo is scarce. The French East India

 31. VOC, 112, 15 November 1696, cited by Ishrat Alam in 'Gujarat and Coromandel as Rival Exporters', op.cit. In that year a large import of indigo in Holland from Java was recorded.

Company began operations in early 1660's almost immediately upon its establishment. By this time Gujarat indigo had already lost its vitality in the European markets and any large trade in this item was economically unviable. The French factory in Surat was established in 1667. The French preferred to purchase goods from Surat with the help of agents without establishing subordinate factories at other places in Gujarat, as the latter course would have incurred much expenditure on maintenance alone.¹ In Surat the French bought Indian textiles, indigo and other commodities and had their own middlemen or agents working for them in Surat, Broach, Baroda, Ahmadabad and other centres.² In 1671 the French East India Company sent a ship to France whose cargo included indigo some of which was of the Bayana variety.³

1. *Francois Martin Memoirs: Travels in Africa, Persia and India*, tr. Aniruddha Ray, Calcutta, 1990, p.450.
2. Balkrishna Govind Gokhle, *Surat in the Seventeenth Century: A study in Urban History*, Bombay, 1979, p.169.
3. *Selection*, op.cit., I, pp.48-49.

(III, e) Indian and other Asian Merchants

From the very beginning the markets of Persian Gulf and the Red Sea had received supplies of indigo from India.¹ Abu'l Fazl mentions Sarkhej indigo as being carried to the Ottoman Empire and other countries at the close of the sixteenth century.² The traffic between Gujarat and the Red Sea ports and Persian Gulf remained active throughout the seventeenth century. Its potential importance as a cash crop was such that Shah Abbas I attempted to introduce indigo cultivation there, but his attempt was unsuccessful in substantially curtailing the flow of Indian indigo into the country.³ As between these two outlets the Persian Gulf consumed more indigo than the Red Sea. In the English correspondance we find that Sarkhej indigo was an important item of export from Gujarat to the Persian market.⁴ In the second decade of

1. The import of indigo from India was reported in 14th century by the author of *Flaha*, see *The Cambridge History of Iran, The Saljuq and Mongol Periods*, V, ed. J.A. Boyle, Cambridge, p.502.
2. *Ain-i Akbari*, II, p.115.
3. Stephen Frederic Dale, *Indian Merchants and Eurasian Trade, 1600-1750*, New Delhi, (Reprint), 1994, p.22.
4. *EFI*, 1624-29, p.306; Surendra Gopal, *Commerce and Craft in Gujarat*, New Delhi, 1975, p.43.

the seventeenth century Iran is estimated to have been consuming about 100 churls of indigo annually which also included some Bayana indigo.¹

The carrying trade in indigo along these routes was undertaken by a heterogeneous group of merchants, which, apart from the Europeans, included Indians, Persians, Jews and Armenians.² Among the Indian merchants, the Gujaratis comprising Hindu *banyas*, Jains and Muslims, pre-dominated.³ These merchants purchased indigo from Sarkhej and other places and sent them to Mocha and Persia. For their consignments they sought a place in the English ships or the ships belonging to the Mughal king and princes.⁴ The Gujarati ships which plied in the Arabian sea, voyaging to Persia and the

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1. *The Cambridge History of Iran: Timurid and Safavid periods*, VI, ed. Peter Jackson and Laurence Lockhart, Cambridge, 1986, p.448.
 2. Wouter Heuten catagorically refers to Muslim, Hindu, Jewish, Persian, English, Portuguese and Armenian merchants, see Om Prakash, *Precious Metals*, op.cit., Chapter XVI, p.72.
 3. *Letters Received*, V, p.81; *EFI*, 1624-29, p.307, S. Gopal, op.cit., p.43.
 4. Blochet 482, ff.28a-28b; Van den Broeke refers to Surat merchants despatching goods to Mocha in the Red Sea by the king's or Prince's ships (Van den Broeke, op.cit., p.245).

Red Sea, even after securing licence from the English or the Dutch, were exposed to the danger of attacks by the pirates. The English or the Mughal ships were thought more safe.¹ The Dutch were quite cautious in extending this facility to the Gujaratis: Pelsaert (1626) informs us that they carried no goods on freight which might compete with their own exports to Persia.² Although the English tried to supply indigo to these markets, they had to face stiff competition from the Indian as well as other Asian merchants. An English letter of 1617 attests the presence of non-European buyers of great quantities of Sarkhej indigo at Ahmadabad.³

Besides carrying indigo to these markets some of the merchants were also involved in local transit trade,⁴ mainly, buying indigo from the indigo-makers in the villages and selling them in the markets of

1. The English were known for carrying a considerable amount of freight cargo to these places, thus earning good income (*DFI*, 1617-23, pp.246, 258).
2. Pelsaert, op.cit., pp.40-41; Both the English and the Dutch however transported indigo to the Red Sea for Asian merchants (*EFI*, 1634-36, p.150).
3. *Letters Received*, VI, p.165.
4. *Letters Received*, V, pp.110.

Ahmadabad, Cambay and Surat. John Jourdain (1611) tells us that at Cambay there were more merchants selling indigo than at Ahmadabad.¹ Some affluent merchants as well as the officials of the province indulged in different kinds of speculations. Muhammad Taqi, the *Diwan* of Ahmadabad had accumulated a large amount of indigo (1300 or 1400 churles), and induced the English to buy it.² Himmat Khan, the Governor of Broach (1621), was also involved in such speculative enterprise.³ Wealthy merchants like Devaji Sah (1640) and Abdul Latif (1646) purchased indigo obviously for storage till it could be sold at profit: the English factors bought from them.⁴ Other *banyas* too were active in this business.⁵

Among the non-European foreign merchants the most prominent role in indigo trade between India and Persian Gulf and the Red Sea markets was played by the Armenians. They had a very extensive trading network

1. John Jourdain, *op.cit.*, pp.173-4.

2. *EFI*, 1622-23, pp.173, 211-12, 219.

3. *EFI*, 1618-21, p.329.

4. *EFI*, 1637-41, p.232; *EFI*, 1646-50, p.31.

5. *EFI*, 1630-33, pp.19-20.

stretching from India to Europe.¹ They undertook different forms of commerce i.e., caravan, peddling, large-scale retailing, wholesale trading etc.² The description of activities in the indigo markets of Agra by Pelsaert (1626) gives us some idea of their enthusiasm even with small capitals.³ It may be presumed that they behaved in the same way in the indigo markets of Sarkhej. In 1630 the price of Sarkhej indigo reportedly touched a new height because of purchases made by Armenians.⁴ Whatever they procured was mostly carried to the markets of Persia.⁵ The Armenians possibly sent their consignments through their own ships, as there is no reference to their using either the European or the Mughal ships. Around the middle of the 17th century they seem to have plied their vessels

1. For further details see Frederic Mauro, 'Merchant Communities 1350-1750', in *The Rise of Merchant Empires*, ed. J. Tracy, pp.270-74; *Cambridge History of Iran*, VI, op.cit., pp.453-56.

2. Frederic Mauro, *Merchant Communities 1350-1750*, op.cit., p.273.

3. Pelsaert, op.cit., p.16.

4. *EFI*, 1630-33, p.20.

5. *EFI*, 1624-29, p.307.

extensively in the Indian Ocean.¹

Besides the Armenians, the Persian merchants also carried much indigo from Gujarat to Persia.² In 1630 some came in an English ship and bought a large amount of Sarkhej indigo putting hindrances to the English procurement of Sarkhej indigo.³ They also used English ships for their return cargoes to Persia.

The markets of the Persian Gulf and the Red Sea for Sarkhej indigo remained stable since they were apparently not affected by European imports of indigo from West Indies. John Fryer (1672-81) tells us that in the last quarter of the seventeenth century the Basra ships and Jedda fleet from the Red sea, all exported from India vast quantities of indigo, cotton, cotton-yarn and silks.⁴ It is however not mentioned whether the indigo was of the Sarkhej or the Bayana variety.

1. Tavernier, op.cit., I, p.5. Their ships bore a red-yellow flag marked with the lamb of God (F. Mauro, 'Merchant Communities 1350-1750, op.cit., p.273n).
2. Wouter Heuten, cited by Om Prakash, *Precious Metals*, op.cit., Chapter XVI, p.72.
3. *EFI* 1630-33, p.59.
4. John Fryer, 'A New Account of East India and Persia:. Being Nine Years' Travel, 1672-81, ed. William Crooke, New Delhi (Reprint), 1992, I, p.282.

Thus we find that indigo remained an important item of export to the Persian Gulf and the Red Sea throughout the seventeenth century.³⁰ Despite the Europeans' efforts to monopolise or otherwise control navigation along these routes and the English attempt to take over this lucrative branch of commerce, it continued to be dominated by the Indian and other Asian merchants throughout the period.

1. From the ledger of an Armenian merchant Hovhannes Joughayetsi we know that from the sale proceeds at Basra of indigo (bought at Khurja) he earned a profit of about 50 per cent during 1684-85 ("The Ledger of Armenian Merchant Hovhannes Joughayetsi", ed. Levon Khachikian, *Journal of the Asiatic Society*, VIII, No.3, 1966, p.168).

CHAPTER - IV

Organisation of Indigo Trade

(a) Trade and State

All merchants dealing with indigo had to pay taxes that can be broadly classified into 'imperial' and 'local'. The former were taxes and duties imposed by the imperial Court which were collected by the officials and remitted to the imperial treasury, or whose collection was farmed out to individuals. The customs duties were imposed on imports and exports and collected at the ports belonged to this category. At Surat, the main port for export of indigo, the rates of duty varied from 2 to 3-1/2 per cent ad-valorem during the seventeenth century. While the basic guidelines came from the court much scope was left for manipulation by the local officials.¹ Since the post of *mutasaddi* at Surat, incharge of custom duties, was farmed out to the highest bidder, till Shahjahan stopped this practice in the 1640's, the imperial Court took little interest in the fiscal administration of the ports and seldom interfered

1. Farhat Hasan, 'Mughal Fiscal System in Surat and the English East India Company', *MAS*, 24, IV, 1993, pp.713-14.

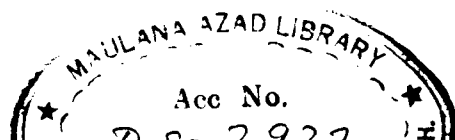
in its functioning unless there was some alarm raised by other authorities or by merchants.¹ This gave the local officials considerable discretion and freedom of action in fiscal affairs.

The 'local' taxes comprised both permitted and illegal exactions. Merchants were subjected to extortion by delay in clearing goods at custom-house in Surat, over-valuation of goods by customs officials and straight forward bribery. Moreland has even gone to the extent of claiming that the bribes, forced sales and over-valuations made the scheduled demand insignificant.² The officials often delayed the passage of goods through the customs-house and obstructed the movement of goods from one place to another. This was a common practice in Gujarat which the English merchants attributed to "the innate and accustomed villainy of the officials who did nothing without bribes".³ The Dutch merchants deemed it necessary to keep them happy by presenting gifts to the *mutasaddi*, the *Shahbandar* and

1. Farhat Hasan, 'Mughal Fiscal System', op.cit., p.716.

2. Moreland, *From Akbar to Aurangzeb*, op.cit., p.276.

3. Ibid., p.274; O.P. Singh, *Surat and its Trade in the Second half of the Seventeenth Century*, Delhi, 1977, p.175.



the person incharge of the fort.¹ In 1631 the English goods (indigo, cotton yarn and saltpetre) were delayed by the Governor of Surat at the customs house.² The *kotwal* and other local officials also obstructed the movement of goods, and had to be bribed by the merchants to abstain.

Mandelslo (1638-39) informs us that though the merchants had to pay no duties or customs at Ahmadabad on exports and imports, it was usual to pay to the *kotwal* 15 'pence' per waggon by way of a present.³ Thus not only Europeans, who carried on a large trade in it, but also Indian and other Asian merchants as well as the producers, were subjected to these extortions.

The peasant manufacturers, after paying the land revenue on their crop, were subject to certain imposts. In 1618 the *faujdar* of Ahmadabad reportedly tried to extort rupees 100,000 from the indigo cultivators in return for giving permission to sell their indigo.⁴ The

1. *DFI*, 1617-23, p.84.

2. *EFI*, 1630-33, p.179.

3. *Mandelslo's Travels*, op.cit, p.28.

4. *DFI*, 1617-23, p.61.

officials especially those in the upper ranks such as the governors, *diwans*, and others freely misused their powers and privileges in pursuit of their own financial interests. They hoarded indigo in speculation to sell it at a higher price to the Europeans. In 1622 Mohammad Taqi the *Diwan* of Ahmadabad, who, as we have seen, had large stocks of indigo to dispose of, forbade the Sarkhej merchants from selling their indigo to the English or any other merchants.¹ The growing demand for indigo in the Eurasian markets and the ensuing competition among the buyers enabled the officials to impose such restrictions for their own benefit. In a letter of 1634 it was reported that the Dutch merchants at Surat negotiated with the governor, Muizzul Mulk, to buy all indigo in the country provided the English did not get any.² This induced the Governor to propose to the Emperor the establishment of an imperial monopoly of indigo trade.³ In 1633 Shahjahan had already farmed out the right to buy all indigo grown in the kingdom of Hindustan (used in a restricted sense of the province of

1. *EFI*, 1622-23, p.173.

2. *EFI*, 1634-36, p.7.

3. *Ibid*.

Agra and the neighbouring parts) to Manohar Das against a payment of rupees 1,100,000 at the end of three years.¹ The monopoly was now extended to Gujarat as well. The officials took away indigo from the producers at their own price and paid them at their pleasure which forced the cultivators to abandon indigo cultivation and migrate to some other place.² Then the king farmed out the entire area to one of his nobles on the condition that if the merchants abstained from buying indigo at his price for two or three years then the loss would be borne by the king.³ The English and the Dutch held negotiations and resolved not to buy any indigo unless they obtained at a price agreed upon between themselves.⁴ Upon this resistance to the monopoly, Muizzul Mulk the Governor of Surat fearing the loss of revenue of his port, pleaded with the king for some relaxation and the king asked the English and the Dutch to make an agreement with the Governor of Surat for the

1. *EFI*, 1630-33, p.324.

2. *EFI*, 1634-36, p.7. 14. *EFI*, 1634-36, p.7.

3. *EFI*, 1630-33, p.328.

4. *EFI*, 1634-36, pp.70-72.

Agra indigo, a proposition which they thought unreasonable since every village produced indigo of different sort and to agree for a large quantity would open a way to so much carelessness in the making of it, and the king being a party they would have no redress.¹ They then petitioned to Asaf Khan and Afzal Khan to forward their plea to the Emperor for the dissolution of monopoly.² The monopoly was also opposed by the cultivators who expressed their indignation by uprooting the plant and deserting.³ Stiff resistance by the producers and merchants therefore forced Shahjahan to rescind the monopoly in 1635.⁴

Shaista Khan too, during his governorship of Gujarat (1646-48) tried to monopolise indigo and other articles of merchandise by buying them from the producers and merchants at his own rates; but he was bribed by the merchants to call off his designs.⁵

1. *EFI*, 1634-36, pp.70-72.

2. *Ibid.*, p.72.

3. *EFI*, 1630-33, p.325; *EFI*, 1634-36, p.7.

4. *EFI*, 1634-36, p.7.

5. *EFI*, 1646-50, pp.58, 193; M.S. Commissariat, *History of Gujarat*, II, Bombay, 1957, p.129.

When the indigo leaf became a marketable commodity in Gujarat the officials got an instrument by which they could make the producers further subject to extortion. In 1656 Prince Murad, the Governor of Gujarat (1654-56), had reportedly got together large stocks of indigo in the leaf and his *diwan* and other officials tried to force the manufacturers to buy it at presumably inflated prices.¹ They also threatened that otherwise they would not allow them to buy any leaf and make indigo.²

These extortions did not mean that the Mughal administration was always blind to the merchants' grievances. We have seen, for example, the case of their interference in case of indigo adulteration. In 1622 the Sarkhej merchants represented to the Governor against the *Diwan's* prohibition of indigo trade and the Governor revoked the prohibition.³ The imperial Court would also on occasion respond to complaints. The abolition of indigo monopoly by Shahjahan in 1635 is an example of such response. The Court's sympathetic concern for

1. *EFI*, 1655-60, pp.52, 76.

2. *Ibid.*, p.76.

3. *EFI*, 1622-23, p.173.

English and Dutch trade can be judged from the lesser known *farmans* of Shahjahan and *parwanas* addressed to the officials of Gujarat.¹

(IV, b) Brokers and Middlemen

For the procurement of indigo the services of brokers were usually deemed essential for all merchants.² Their universal employment is confirmed by evidence relating to the English, Dutch, French and Armenian merchants.³ The business of the brokers was to bring the buyers and sellers together and effect the transaction. They charged brokerage from the party that employed them. The brokers did not invest their own

1. Blochet 482, ff. 45a, 88a-88b, 88b-89a, 128b. See Farhat Hasan, "Mughal Officials at Surat and their Relations with the English and the Dutch Merchants: Based on a Collection of Persian Documents of the Reigns of Jahangir and Shahjahan", *PIHC*, Gorakhpur, 1989, pp.288-93.

2. 'Without the brokers neither the English nor the Indians themselves can do any business' (Fryer, *op.cit.*, p.212). 'They come everywhere and one can neither sell nor buy anything without them' (*Francois Martin Memoires*: p.449). Each merchant however small he might be had an agent without whom one could not deal with an artisan (Van den Broeke in *DFI*, 1617-23, p.134).

3. A.J. Qaisar, 'The Role of Brokers in Medieval India', *IHR*, I, 2, 1974, pp.220-46; M.N. Pearson, 'Brokers in Western Indian Port Cities: Their Role in Serving Foreign Merchants', *MAS*, 22, 3, 1988, pp.455-72.

capital in the transaction and they were not necessarily permanent or exclusive agents of any merchant; rather, they felt free to deal with anyone who required their services. The European companies employed rich merchants as agents. These merchants, having sufficient capital often invested it in procurements, which they later on realised from their principals. Such agents were obviously different from mere brokers.

Specific references to the employment of brokers for the procurement of indigo in Gujarat come from the English and Dutch records.¹ Matheus van Heck, writing in about 1696, informs us that to buy indigo at Sarkhej the services of a broker were always needed.² He further says that the broker rented a warehouse, brought the employer in touch with the producer, supplied him with all necessities including labour for weighing packing, etc., and charged about 5% for his services on the quantity bought.³

1. *Letters Received*, IV, p.292; *EFI*, 1637-41, pp.224-25, 311.

2. Van Heck (1681-1700) cited by Ashin Das Gupta, *Indian Merchants*, op.cit., p.61.

3. *Ibid.*

In 1626 Francisco Pelsaert laid down the method to be followed in procuring indigo. He suggested that if the crop was very good some factors should go to the village to buy whatever was required; otherwise they should stay in the town and purchase it from the local merchants who had advanced money to the producers, binding them not to sell it to anyone else.¹ In conformity with this advice (though it is given in the context of Bayana indigo) we find the Dutch, English and other merchants purchasing indigo at Ahmadabad or in the villages where it was manufactured in either of these two ways. In either case a broker was employed to make the actual purchase. The practice of adulteration, so common among the manufacturers which the Company's factors were unable to detect, made the employment of a knowledgeable broker useful.² The brokers were expected to bargain with the producers not only over price but also over quality in the interests of their employers.

6. Pelsaert, op.cit., p.16. Although his suggestion was specific for procuring the Bayana indigo, this could apply as much to Sarkhej.

7. Cf. David L. White, *Competition and Collaboration: Parsi Merchants and the English East India Company in 18th Century India*, New Delhi, 1995, p.14.

Sometimes the brokers gambled on the price in their own interest. In 1616 the English factors found indigo had advanced in price partly due to the sinister dealings of their brokers who, as a result of this suspicion, had their employment terminated by the Company.¹ Similarly, they sometimes failed to check the quality of indigo procured. In 1640 the supply of adulterated indigo was attributed to the "theevish generation of brokers and subbrokers, *peons*, *majures* or carriers, weighers, packers and skimmers."²

In 1638 the investment in indigo was entrusted by the English factors to a *banya* merchant Devaji Sah who bought it in his own name.³ Devaji Sah thus acted as an agent and not as a broker of the Company. He was himself an indigo merchant buying the commodity at low price and selling it to the English and other buyers at higher prices. He was also reported to be a man of great quality and had the reputation of being the most honest among the *banyas*. This kind of indigo procurement

1. *Letters Received*, IV, p.292.

2. *EFI*, 1637-41, pp.224-25.

3. *Ibid.*, p.91.

through the agency of *banyas* was however very rare. These *banyas* and other merchants engrossed indigo since it was more rewarding to buy it at low rates and then sell it to the English and other foreign merchants later; working as the agents of the foreign merchants for immediate advantage might have appeared less rewarding to them.¹ We do find the English factors on other occasions buying indigo from merchants like Devaji Sah and Abdul Latif.²

Specific information about the employment of brokers and middlemen by the Armenians and Persians in connection with indigo is not available. But the universality of brokers in all commercial transactions inclines us to presume that they also employed brokers to procure better and cheap indigo at Sarkhej.³

The French East India Company had agents in different marts of Gujarat. Since the French operated

1. *Letters Received*, II, p.188; *EFI*, 1630-33, pp.19-20.
2. *EFI*, 1637-41, p.232; *EFI*, 1646-50, p.31.
3. The Armenians had their middlemen in Surat and other places in India and from the Ledger of Hovhannes Joughayetsi it transpires that wherever he went he was assisted by them ('Ledger of Armenian Merchant Hovhannes Joughayetsi', op.cit., pp.157-62); See also M.N. Pearson, 'Brokers in Western Indian Port Cities', op.cit., p.460.

their business from Surat and had no subordinate factories at different production centres of Gujarat, they had to have agents to whom the business of procuring commodities was entrusted. The French agent or middleman Samson was in no sense a broker, although he was spoken of by Francois Martin as a broker.¹ He was a wealthy *banya*, merchant and being an agent of the French Company sent *banyas* to the places of manufacture to procure merchandise and bring it to Surat for his principals.²

In the light of this information Holden Furber's assertion³ that in the indigo transactions the Company's servants or merchants were in direct contact with the Indian peasant and were not yet separated by a screen of brokers and middlemen, needs to be reconsidered. The English, Dutch and the French companies employed brokers as well as middlemen for the procurement of indigo in Gujarat and in both the cases the Company's servants could only rarely have been in direct contact with the peasants.

1. *Francois Martin, Memoires*, op.cit., pp.448-52.

2. *Francois Martin Memoires*, op.cit., pp.448-50.

3. Holden Furber, *Rival Empires of Trade in the Orient*, New Delhi, 1990, p.259.

(IV, C) Finance of Indigo Trade

Indigo was purchased in the markets of Gujarat either from the producers or from the local merchants and payments were made in cash. As the demand for this commodity grew in the first part of the 17th century, it became incumbent upon the merchants to make partial payment in advance to ensure the supply of indigo. In the indigo markets of Bayana the practice of advancing money to the manufacturers is reported by contemporary travellers.¹ In Sarkhej the Indian merchants: *banyas* and Muslim merchants with sufficient capital must similarly have advanced money to the producers to ensure procurement. The English and the Dutch too might have advanced money to the manufacturers. Unfortunately, there is yet little firm evidence of this. Foster infers that for the economical purchase of indigo it was necessary to make arrangements with the growers early in the season and to finance them by advances of money.²

 1. Two local merchants of Bayana Mirza Sadiq and Ghazi Fazil cornered most of the indigo by advancing money to individual producers (Pelsaert, op.cit., pp.16-17). In 1632 much money was advanced by the English in indigo investments (Peter Mundy, op.cit., p.148). See also A.I. Chircherov, *India Economic Development in the 16-18th Centuries*, Moscow, 1971, p.164.

2. William Foster, *England's Quest of Eastern Trade*, op.cit., p.314.

But from our sources it would appear that this practice of advancing remained quite weak at least in Gujarat. There were two factors which, might have discouraged advances in indigo. There was, first, the practice of adulteration more common in Gujarat than anywhere else. Secondly the supply of cash to the English and the Dutch was extremely uncertain and the demand for indigo too, was not specified from their principals in Europe well in time. Once the English and the Dutch factors received the supply of cash and goods from their headquarters they went to Sarkhej to procure whatever was available. Sometimes when their supplies of funds and goods came late they stayed at Ahmadabad to purchase indigo from the local merchants who had obtained it earlier from the manufacturers.¹ Two episodes recorded by Nicolas Withington (1612-16) at Agra may be mentioned. In 1614 he was twice asked to procure indigo, once up to the value of 20,000 *mahmudis*, which he did accordingly and procured on his own credit; but after he despatched them to Surat, he got the order not to procure any.² After

 1. *EFI*, 1622-23, pp.211-12; *EFI*, 1637-41, p.232; *EFI*, 1646-50, p.31.

2. Nicolas Withington (1612-16) in *Early Travels*, op.cit., pp.192, 223.

much trouble he could get the consignment back and with the governor's intercession persuaded the merchants to take their indigo back.¹ The Dutch had also financial problems in their early days at Surat: in 1621 they had to miss an opportunity to buy Sarkhej indigo at reduced rates.² Their poor financial condition at Surat was highlighted by Pelsaert in 1626 who says that the Dutch merchants had no money to buy textiles in Broach or Ahmadabad, and in order to do so they had to be constantly involved in debt.³

The English merchants at Ahmadabad received funds for investment in indigo and other commodities from home via. Surat, either in the form of bullion or *rials* (a Spanish silver coin current in Europe and accepted all over the world in the seventeenth century). The minting of the coins and the exchange of *rials* into rupees often took much time, and the delivery of the money was delayed, creating problems for punctual purchases of indigo.⁴ The Dutch too got their supplies mostly in

1. Nicolas Withingtin (1612-16) in *Early Travels*, op.cit., pp.192, 223.

2. *DFI*, 1617-23, pp.62, 153.

3. Pelsaert, op.cit., p.41.

4. *EFI*, 1618-21, pp.7-8; J.N. Sarkar, op.cit., p.152.

rials.¹ Funds could be transferred from one factory to another, whenever this was deemed necessary, through bills of exchange. In 1619 funds were provided to the Dutch factory at Surat from Masulipatam through bills of exchange to enable the factors to buy indigo and textiles.² In 1630 the English merchants at Agra were provided with a bill of exchange for Rs.25000 from Surat mainly for the procurement of indigo.³ They were also promised that funds would be remitted through bills of exchange both from Ahmadabad and Surat.⁴

The actual payment to the producers was generally made in cash when indigo was purchased in the villages. But sometimes when the commodity was procured at Ahmadabad from local merchants, payment was occasionally made in goods.⁵ In 1623 the English merchants at Ahmadabad proposed to their superiors at Surat that Dholka indigo might be purchased at bargain rates if the

1. *DFI*, 1617-23, Passim.

2. *Ibid.*, p.114.

3. *Selections*, op.cit., I, p.5.

4. *Ibid.*

5. In 1618 at Agra, indigo was bartered with cloth by the English merchants (*EFI*, 1618-21, p.47).

Governor could be persuaded to take coral in part payment.¹ Similarly, in 1629 they sold off lead in exchange for Sarkhej indigo while part of it was taken by Virji Vora in exchange for pepper.²

Payments against indigo procured at Ahmadabad could also be made at Surat. Since the rich merchants and high officials had their agents or representatives at both the places, the English merchants at Ahmadabad preferred to make payments at Surat probably to avoid the loss of money in exchange. This is borne out from the irritation felt by the English factors when Muhammad Taqi demanded payment for his indigo at Ahmadabad instead of Surat.³

1. *EFI*, 1622-23, p.187; J.N. Sarkar, op.cit., p.154.

2. *EFI*, 1624-29, p.230.

3. *EFI*, 1622-23, p.219.

(iv, D) PACKING AND TRANSPORTATION

Indigo was purchased at Sarkhej in a loose form and then packed. There were different techniques and forms of packing. The local merchants of Gujarat (Sarkhej and other places) used to pack indigo cakes in usually round packets which were called (in foreign sources) as churles, bales or fardles. The fardle meant a leather bag in which indigo was packed with straw; and this parcel was naturally round.¹ Packing in round form was the most common practice, and it was in this form that the Gujaratis carried indigo to the Red Sea.² The baskets in which indigo was alternatively packed were square; it was reportedly carried as in square baskets to Aleppo via Persia by some of the Gujaratis.³ Each such basket or chest contained two churles.⁴ It was made "lattice-wise of a round" briar (a kind of wild bush) and was put in a calico bag. Since it was not covered with leather it was light yet strong.⁵ Packing in square

1. *Letters Received*, II, p.249.

2. *Ibid.*, V, p.81n.

3. *Letters Received*, V, p.81n.

4. *Ibid.*

5. *Ibid.*

baskets was expensive as well as inconvenient, as these required boards, chests (large boxes or cases) and baskets of briar, which was quite scarce and dear. Owing to this, therefore, the Gujaratis preferred to pack their indigo in round churles or fardles.¹

The constraints of time and short sailing season forced the English factors to hurry up the dispatch of the procured indigo, and they found it convenient to purchase indigo that was already fardled in the round form.² Since the round packets covered extra space in holds of the ship and could not be put close to each other, the English factors were often instructed to transfer them into square baskets to avoid wastage of tonnage.³ Such instructions, it seems, were not always obeyed since we find the English factors often offering excuses for not following the order due to the constraints of time.⁴ The loss of tonnage was such that in 1617 they were asked to store loose indigo itself in

1. *Letters Received*, V, p.81n.

2. *EFI*, 1622-23, pp.211-12; *EFI*, 1637-41, p.311.

3. *Letters Received*, V, p.133; *EFI*, 1618-21, p.329; *EFI*, 1630-33, p.9.

4. *Letters Received*, V, p.133; *EFI*, 1618-21, pp.329, 348, *EFI*, 1642-45, p.39.

ships if it was not packed in square baskets.¹ This proposition was not accepted as it required much care to keep indigo cakes free from dirt and wet, and safe from breakage, and from intermingling of pure with the coarse varieties.² The packing of indigo had therefore to be done, keeping in mind the convenience of stowage. Each packet usually weighed four maunds, but the English factors began to take bags weighing six maunds as they realized that packets of 4 maunds took no less space than those of six.³

The Dutch factors were also reportedly trying to pack their indigo in square chests or baskets after the English fashion.⁴ For packing the English employed a number of labourers such as packers, weighers and skimmers who all helped in getting the consignment ready for shipment.⁵ The Dutch too employed such labourers to complete consignment. Van Heck (1681-1700) informs us that it were the brokers who supplied labourers to their

1. *Letters Received*, V, p.81.

2. *Letters Received*, V, p.81.

3. *Ibid.*, p.82.

4. *EFI*, 1618-21, p.348.

5. *EFI*, 1637-41, pp.224-25.

principals probably for packing and other purposes.¹

Indigo so packed had to be transported to Surat, and from Surat to Swally Marine, where it was laden aboard ship. From Ahmadabad and other places in Gujarat indigo was transported to Surat on carts.² While the use of camel for transporting indigo from Agra to Surat is well documented, we have yet to come across evidence of its use between Ahmadabad and Surat.³ From Surat to Swally goods, including indigo were transported only on carts.⁴ Mundy tells us of an accident in which much of the indigo, being so transported, was damaged.⁵ The use of carts had several advantages as these did not need to be loaded and unloaded at every stop as was the case with camels. Thomas Roe (1615-19) while recommending the use of carts in transporting goods says that each cart carried the load of three camels and

1. Van Heck cited by Ashin Das Gupta, *Indian Merchants*, op. cit., p.61.

2. *EFI*, 1622-23, p.125.

3. Nicolas Withington (1612-16) in *Early Travels*, op. cit., p.223; *EFI*, passim.

4. *EFI*, 1630-33, p.96.

5. *Travels of Peter Mundy*, op.cit., II, p.279.

was a third cheaper in hire.¹ It also did not require so many attendants, and the goods were safe.² Information on transporting charges is very scarce. In a letter of 1618 however the cost of carriage from Ahmadabad and Cambay to Surat was 1-1/4 mahmudis per small maund.³ And this must have been added to the cost of Sarkhej indigo, ex-Surat.

1. *The Embassy of Sir Thomas Roe*, op.cit., p.321.

2. Ibid.

3. *EFI*, 1618-21, p.51.

CHAPTER V

WEIGHTS AND PRICES

There were different units of weight used in indigo transaction in Gujarat during the seventeenth century. Some of them were indigenous while others were foreign adaptations. Since the Europeans were the active participants in this commerce, they wished to quantify in their own units of weight, and therefore the indigenous weights were sometimes given equivalent values in terms of the English pound, Dutch 'pond' or French 'livres'. Among the indigenous units of weight the maund (*man*) was the most common. It was of two kinds. The imperial maund or 'great maund of Agra' was not used in the indigo trade of Gujarat; the unit here was the 'small' maund also called Sarkhej maund, which was kept at half the value of the great maund. Each maund was reckoned at 40 *sers* and each *ser* under Akbar weighed 30 *dams* (copper coins) in the case of the great maund of Agra, and 15 in that of the Gujarat maund. In a letter of 1615 the weight of Agra maund was given (rather loosely) as equal to 50 lbs. English while the

Sarkhej maund was equal to 30 lbs. English.¹ The former corresponded with the *man-i-Akbari* whose value was actually 55.32 lb.² though it continued to be set at 50 lb. in later English record as well.³ Jahangir raised the weight of the great maund to 36 dams per ser and so the Gujarat *man* also rose correspondingly to the weight of 18 'pize' per ser.⁴

In 1635 the weight of a *ser* in Gujarat was raised to 20 *dams* after the introduction by Shahjahan of *man-i-Shahjahani* of 40 *dams* a *ser*.⁵ The value of 'small' maund of Gujarat was thus equal to 36.83 lb avdp., and was thus reported to be 37 lbs. English during Shahjahan's reign.⁶ In 1662 its value was reported as 36 2/3 lbs.⁷ Tavernier informs us that the maund of Surat was equal to 34 1/2 *livers* which was exactly half

1. *Letters Received*, III, p.69.

2. Irfan Habib, *Agrarian System*, op.cit., p.368.

3. *EFI*, 1630-33, p.328.

4. *Letters Received*, III, p.11.

5. Irfan Habib, *Agrarian System*, op.cit., pp.376-77.

6. *EFI*, 1646-50, p.206.

7. *EFI*, 1661-64, p.113.

of the 'great' maund of Agra whose value according to him was 69 livers.¹ At another place referring to maund used in weighing indigo in Gujarat he tells us that it was 42 sers (instead of 40, to allow a discount to buyer) which was equal to 34 1/2 livres while the Agra maund was of 60 sers which corresponded to about 51 3/4 livres.²

The indigo producers of Gujarat, it seems allowed 42 sers to a maund to the merchants probably to recompense the loss of weight in post transaction period when indigo was further dried.³ This allowance was withdrawn in 1646-47 by prince Aurangzeb during his governorship of Gujarat.⁴

We also come across other units of weight like 'catty' and 'quintal'. The former was a weight of Chinese origin and was equal to 1 1/3 lbs. English.⁵

1. Tavernier, op.cit., I, p.32.
2. Tavernier, op.cit., II, p.7. French livre was slightly less than the Dutch pound which was equal to 1.09 lbs. avoirdupois (Irfan Habib, *Agrarian System*, op.cit., p.377).
3. *Letters Received*, II, p.249.
4. *EFI*, 1646-50, pp.143, 145, 254.
5. Hobson Jobson, p.175.

Quintal was also used by the merchants, and the Portuguese generally bought it in quintals.¹ Its weight was given as 130 lbs. avdp..²

Apart from these, a number of other terms was used as the unit of indigo transaction especially by the Europeans. One set of these was represented by loads or packages called 'churl', 'bale', 'fardle', or 'barrel'. Each signified a package of weight and size convenient for transportation and did not therefore represent a specific unit of weight in itself.³ Even these packages were not uniformly of one size and weight and the English factors were not able to specify the exact weight of each packet when so desired by the home authorities.⁴ In English letters a 'churl' is defined as a unit by which indigo was bought and sold; the 'greater churl' was a little over five maunds in weight; the 'smaller' four.⁵ Similarly a 'bale' was thought to be -----

1. Irfan Habib, *Agrarian Sytem*, op.cit., p.378.

2. Moreland, *From Akbar to Aurangzeb*, op.cit., pp.93,334.

3. Irfan Habib, *Agrarian System*, op.cit., p.378.

4. *EFI*, 1618-21, p.291.

5. *Letters Received*, III, p.336; *EFI*, 1624-29, p.208.

equal to 150 lbs. for Sarkhej, in which case it must have weighed more than four maunds.¹ At Ahmadabad the weight of a bale of indigo was reported to be 4 maunds in 1619.² In 1629 a bale contained about four maunds and seven sers in Gujarat.³ 'Fardle' (bundle) was the English term for a 'churl'. Its weight was also given as 4 maunds and 7 sers.⁴ The English factors were ordered (in 1614) to pack indigo in round fardle in the manner of Sarkhej containing five maunds.⁵ 'Barrel' was also sometimes used for weighing indigo, a 'barrel' being deemed equal to 280 lbs. English.⁶

Indigo prices in Gujarat during the seventeenth century are usually stated in terms of rupees and *mahmudis*.⁷ It naturally varied with the size of the crop

1. Moreland, *From Akbar to Aurangzeb*, op.cit., p.113.

2. *EFI*, 1618-21, p.76.

3. *EFI*, 1624-29, p.230.

4. *EFI*, 1622-23, pp.328-29; *EFI*, 1624-29, p.230.

5. *Letters Received*, II, p.249.

6. *EFI*, 1630-33, p.9.

7. Both the coins were in use in Gujarat in seventeenth century. The silver rupee was issued by Mughal mints at Ahmadabad and Surat; it was held to be worth 2 to 2 shilling 9 d. in value (Terry, 1622, in *Purchas His*

and the conditions of demand. When the producers expected that there would be fierce competition among the buyers, they enhanced the price. The indigo prices set out in Table 1 give the impression of considerable variations, rising often through competitive pressures. In 1617-18 when the Portuguese bought about 5000 maunds of Sarkhej indigo and the English and Dutch competed for the commodity the price was abnormally high as compared with the prices of previous years.¹ From Moreland's study of prices of Sarkhej indigo it appears that he failed to find a rise in the price throughout the first part of the seventeenth century.² He assumed Rs.18 per Gujarat maund (of 30 lbs.) as the standard price of Sarkhej indigo, a price casually quoted in a document of 1613 as prevailing earlier.³ Our Table I reveals that

Contd....

Pilgrims, IX, p.23). *Mahmudi* was also a coin of coarse silver, held equal to 2/5 of a rupee (1 rupee = 2 1/2 mahmudis, *Letters Received*, I, pp.305-6), and to 1 shilling (12 d.) (*Letters Received*, III, p.11; Bal Krishna, op.cit., p.59). Its value reportedly rose to 4/9 (0.44%) of a rupee subsequently (Irfan Habib, *Agrarian System*, op.cit., pp.383-84).

1. *DFI*, 1617-23, p.62. See Table-1.
2. Moreland, *From Akbar to Aurangzeb*, op.cit., pp.160-64.
3. *Ibid*.

the price level of Rs. 18 per maund could be obtained only in 1617-18 and not before. Since the maximum price of Bayana indigo as recorded by Abu'l Fazl in *Ain-i-Akbari* was Rs. 16 per maund (of 50 lbs.) the standard price of Rs. 18 per Gujarat maund (= Rs.36 for the full *Akbari* maund) for Sarkhej indigo for the pre- 1613 period is hardly possible.¹

Prices undoubtedly underwent periods of slumps as well as booms. From 1618 onwards they went down till at least 1625 recording the lowest price in 1622 possibly due to the temporary over production and miscalculation of demand.² They began to rise thereafter and reached the high mark of Rs. 22 and 25 during 1632-33 due to the famine of 1630-1. Prices obtained new height in 1634-35 when the monopoly over indigo trade was established by Shahjahan. In 1636 the prevailing price was Rs. 27 and 28 per Gujarat maund. Although the monopoly was withdrawn in 1635, prices were still high though the price owing to change in weight of maund was lower than that of 1633. After 1636 prices declined and in the

1. Cf. Irfan Habib, 'Moneytary System and Prices' in *The Cambridge Economic History of India*, I, ed. Tapan Raychaudhuri and Irfan Habib, Delhi, 1982, pp.374-75.

2. Moreland, *From Akbar to Aurangzeb*, op.cit., p.163.

TABLE-1
INDIGO PRICE OF SARKHEJ

Year/Month	Price in rupees per maund of Gujarat	Index	Source
1609 August	10-12 (25-30 mahmudis per maund)	100.00	Letters Received, I, p.28.
1612 May	7 (14 rupees the great man of Agra)	58.33	John Jourdain, op.cit., p.217.
1613	14	166.66	Letters Received, I, pp.305-6.
1614	10-15	125	Ibid., II, pp.214, 249.
1617 August	18-22 (45-55 mahmudis per maund at Surat)	183.33	DEI, 1617-23, p.34.
1618 March	15-18	150	Ibid., p.61.
1621 December	9-1/4 - 9-1/2	80	EFI, 1618-21, p.348.
1622 January	7	58.33	EFI, 1622-23, p.19.
" August	8-9	75	Ibid., p.109.
" November	8-9	75	Ibid., p.158.
1623 April	7-1/2 - 8	66.66	Ibid., p.219.
1623	10-10-1/2 (42-3/4 per fardle) p.331)	87.50	Ibid., p.332.
1625	12	100.00	EFI, 1624-29, p.63.
1628 January	12-1/2 - 13-1/2 (Old indigo)	112.50	
"	13-3/8 - 15-1/2 (New indigo)	130	Ibid., p.208.
" March	12-3/4 - 14-1/4	120.85	Ibid., p.275.
1629 April	13-1/2 - 13-3/4 (54-55 rupees per fardle)	114.50	Ibid., p.334.
" "	12-16	133.33	Ibid., p.335.
1630 October	18-18-1/2	154.16	EFI, 1630-33, p.59.
" December	16-1/4	137.50	Ibid., p.127.
1632 April	19-22	183.33	Ibid., p.215.
1633 January	23-25	208.33	Ibid., p.255.
1633 November	16-18 (per Surat maund)	150	Ibid., p.328.
1634 December	18-1/2	154.16	EFI, 1634-36, p.70.
1636 January	27 (paid by the Dutch)	182.43	Ibid., p.142.
" September	28 (paid by the English)	189.18	Ibid., p.292.
1638 December	20	135.13	EFI, 1637-41, pp.91-92.
1640 January	16-1/2 - 22-1/2	152.02	EFI, 1637-41, p.232.
1643 "	32 (per Surat maund)	216.21	EFI, 1642-45, p.95.
1644 March	18-7/8	127.50	Ibid., p.164.
1645 "	23-25 (per bale ?)	168.91	Ibid., p.254.
1646 "	23-1/2 - 24	162.16	EFI, 1646-50, p.31.
	22-1/2 (paid by English)	152.02	Ibid.
1647 January	19-22-1/2	152.02	Ibid., p.77.
" July	22	148.64	Ibid., p.143.
1650 March	14-15	101.35	Ibid., p.305.
1655	13-1/8	88.64	EFI, 1655-60, p.18.
1656	17-1/2-18	121.62	Ibid., p.76.
1668	13	87.83	

TABLE-2

**CEILING-PRICES FOR ENGLISH
PURCHASES OF SARKHEJ INDIGO**

Year/ Month	Price in rupees per maund of Gujarat (37 lbs. avdp.)	Index	Source
1660	9.8-11.1 (8-9d. per pound)	75	<u>EFI</u> , 1655-60, pp.322-336.
1663	16.28 (1 mahmudi per pound)	110	<u>EFI</u> , 1661-64, p.199.
1664	12.21 (3/4 mahmudi per pound)	82.5	Ibid., p.326.
1665	16.28 (1 " " ")	110	<u>EFI</u> , 1665-67, p.17.
1666	22.2 (1 Shilling 6.d. per pound)	150	Ibid., p.168.
1669	22.2 (1-1/2 mahmudis per pound)	165	Bal Krishan, op.cit., p.303.
1671-77	16.28 (1 " " ")	110	Ibid.
1678-82	11.1 (9d. per pound)	75	Ibid.

Note: In preparing the Price List I have converted the prices into rupees wherever given in other currencies (*mahmudi* at the rate of 2/5 of a rupee and a shilling or 12 d. at 2/5 of a rupee) and rendered the weights into small maund of Gujarat wherever indicated otherwise. In the second half of the seventeenth century the value of *mahmudi* rose to 4/9 (0.44%) of a rupee, hence the price after 1650 if given in *mahmudi* is converted into rupee at the enhanced rate of 4/9 of rupee (as in Table 2). In preparing the index (of both the Tables), the changes in the weight of Gujarat maund from 30 lbs. to about 37 pounds English in 1634-35 as well as in the value of *mahmudi* vis a vis. rupee (from 2/5 to 4/9 of a rupee) are taken into consideration.

1640's it varied from Rs. 18 to Rs. 24-25 per Sarkhej maund which still represents a rise of approximately 50 per cent. over the price of 1609. (See Table-1) From 1645 onwards prices fell and in 1650 they were quite low: about equal the price of 1609.

In the second half of the seventeenth century the demand for indigo apparently fell sharply, the English imposed a price-ceiling above which they would not buy. Earlier the purchase price per unit of indigo in India used to determine the sale price in England and Europe; now reverse trend began, and the cost prices in Gujarat began to be determined by the prospective sale prices in England in European markets owing to West Indian competition. The prices suggested for Sarkhej indigo were quite low and went even below the price of 1609 (Table-2). Thus the fall in prices which began in the post-monopoly period continued throughout our period quite unlike the Bayana indigo which maintained a steady rise in price even when the European demand began to fall off in the second half of the seventeenth century.¹ Major dependence of Sarkhej indigo upon European trade may be the possible explanation for the continuous fall of prices.

1. Cf. Irfan Habib, *Agrarian System*, op.cit., p.88.

Appendix 'A'

Purchases of Sarkhej Indigo by the English

Year/Month	Quantity	Source
1615 February	1200 churles	letters Received, III, p.16.
1615 March	1400 fardles (1421 churles)	Ibid., p.69.
1617	1167 fardles ("6632 small maunds")	L.R. V, pp.109-10.
1622 December	600 maunds	EFI, 1622-23, p.173.
1623 "	3000 fardles	Ibid., p.331.
1623	1700 bales (private traders)	DFI, 1617-23, p.286.
1628 January	402 churles	EFI, 1624-29, p.208.
1630 April	1000 fardles	EFI, 1630-33, pp.19-20.
1640 January	661 bales (best sort) 340 " (coarse)	EFI, 1637-41, p.232.
1644 March	1200 maunds (ordered)	EFI, 1642-45, pp.163-64.
1646 January	203 bales	EFI, 1646-50, p.12.
1647 "	200 "	Ibid., p.77.
1647 October	100 " (round indigo) 250 " (flat or 'rury')	Ibid., p.160.
1649 January	71 " (pure or round) 139 " (falt indigo)	Ibid., p.254.
1663	200 " (ordered)	EFI, 1661-64, p.199.
1664	50 " "	Ibid., p.326.

Appendix B

Annual demand for indigo by the Dutch from Holland

(weight in Dutch ponds)

Year	Bayana	Sarkhej	Coromandel
1623	80-100,000	40-50,000	-
1631	140,000	140,000	-
1633	90,000	150,000	-
1634	200,000	150,000	-
1635	200,000	150,000	100,000
1636	200,000	150,000	100,000
1638	200,000	100,000	100,000
1639	150,000	100,000	100,000
1640	150,000	100,000	100,000
1641	150-200,000	150-200,000	120,000
1642	150-200,000	100,000	120,000
1643	100-150,000	100,000	100,000
1644	100,000	30,000	30,000

Source: This list is based on a series of records of the V.O.C. called "Resolutien genomen op de ordinarijs en extraordinarijs vergaderingen van Heeren XVII". I have reproduced it from an unpublished paper "Gujarat and Coromandel as Rival Exporters in seventeenth century: A Study in Dutch Documents", by Ishrat Alam, presented in Medieval India section of the 'Indian History Congress, Gorakhpur, 1989.

1645	100,000	30,000	30,000
1646	100,000	30,000	30,000
1647	100,000	50,000	30,000
1648	100,000	50,000	30,000
1649	100,000	50,000	30,000
1650	100,000	50,000	30,000
1656	50,000	50,000	25,000
1657	100,000	25,000	50,000
1658	60,000	25,000	20,000
1659	50,000	20,000	15,000
1660	50,000	30,000	15,000
1661	50,000	30,000	15,000
1662	30,000	50,000	50,000
1663	60,000	40,000	20,000
1664	100,000	60,000	30,000
1665	100,000	60,000	30,000
1666	100,000	60,000	30,000
1667	150,000	80,000	30,000
1668	200,000	80,000	40,000
1669	100,000	50,000	40,000
1670	150,000	50,000	40,000
1671	200,000	50,000	60,000
1672	100,000		40,000

1673			40,000
1674	100,000	10,000	50,000
1675	100,000	10,000	50,000
1676	100,000	10,000	50,000
1677	50,000	6,000	25,000
1678	50,000	6,000	25,000
1679	50,000	-	20,000
1680	50-80,000	-	20,000
1681	50-60,000	-	20,000
1682	70-80,000	-	20,000
1683	70-80,000	-	20,000
1684	100,000	10,000	25-30,000
1685	100,000	10,000	40,000
1686	100-140,000	25,000	40,000
1687	100-140,000	25,000	40,000
1688	100,000	20,000	40,000
1689	100,000	40,000	
		10,000 (Jambusar)	
1690	100-160,000	40,000	50,000
		20,000 (Jambusar)	
1691	150-160,000	40,000	50,000
		10,000 Jambusar	
1692	200,000	40,000	

		10,000 Jambusar	50-53,000
1693	200,000	40,000	
		10,000 (Jambusar)	50,000
1694	200,000	40,000	
		10,000 (Jambusar)	60,000
1695	200,000	40,000	
		10,000 (Jambusar)	60-70,000
1697	200,000	30,000	
		6,000 (Jambusar)	40,000
1698	150-200,000	30,0000	
		6,000 (Jambusar)	31,000
1699	150-200,000	12,000	
		6,000 (Jambusar)	15,000
1700	150-200,000	6,000	
		6,000 (Jambusar)	12,000-

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The second part has two sub-sections: the first comprises works of reference, and the second, books and articles. In this part the entries are arranged in alphabetical order.

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